DRAGONAIR

A320/A321

QUICK REFERENCE HANDBOOK

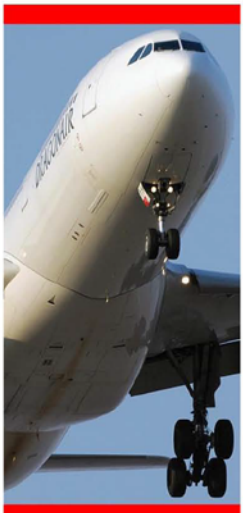
This volume forms part of the Operations Manual. It is issued by the Operations Department and is authorised by the General Manager (Operations).

Signed :

Peter SANDERSON
General Manager Operations

The holder of this volume is responsible for its revision.

DRAGONAIR
港龍航空



安全、質量及保安政策

安全、質量及保安是港龍航空的核心價值。藉著各員工絕不妥協地致力推行各種持續提升質量、保安及安全管理系統計劃，我們務求在這些方面均達到最高的水平。

港龍航空一直以來均十分重視及鼓勵任何有關運作安全及保安事件的報告。我們有既定政策，鼓勵每一位員工向公司匯報任何可能影響航班及地勤營運安全及保安的情況及資料，並積極推動這種文化。我們更製訂了一套程序，適用於航空安全報告、機艙安全報告、地勤安全報告、品質審計報告及保安審查報告所收集紀錄及發放的資訊，確保溝通可以在不受拘束的情況下進行。

我們亦確立機制，以量度及訂立在所有有關安全、質量及保安方面的主要表現水平，並以嚴謹的風險評審，按其重要性訂定改善措施的優先次序。

爲建立互信關係，港龍航空推行公平文化的政策，決不會紀律處分任何匯報有關航班安全事件的員工。但如果有關資訊是來自其他來源，或員工刻意漠視既定的政策及程序，此項政策則不適用。我們希望從錯誤中學習，以不斷提升水平。

作爲行政總裁，我自然責無旁貸，除致力履行承諾提供安全的運作及工作環境，我務請大家積極負責，讓港龍航空繼續在安全、品質及保安方面均達致最高的水平，讓顧客、員工及商業夥伴均受惠，並保持公司在這方面的業界領導地位。

行政總裁　楊偉添

二〇一一年八月

SAFETY, QUALITY AND SECURITY POLICY

Safety, quality and security are core values of Dragonair. We are dedicated to achieving the highest standards in these disciplines by the uncompromising efforts and vigilance of every employee in implementing continuous quality improvement, security and safety management system programmes that are in place in Dragonair.

It is imperative that we have uninhibited reporting of all incidents and occurrences which compromise the safe and secure conduct of our operations. We have a policy of an open reporting culture where every employee is encouraged to communicate any information that may affect the integrity of flight and ground safety and security. Such communication is free of reprisal. Our method of collecting, recording and disseminating information obtained from Air Safety Reports, Cabin Safety Reports, Ground Safety Reports, Quality Audits and Security Inspections has been developed to achieve this aim.

We have established methods to measure and set key performance standards in all the safety, quality and security disciplines coupled with a rigorous process of risk assessment in order to prioritise the deployment of corrective actions in a timely and efficient manner.

To engender mutual trust, Dragonair has a just culture policy where it will not take disciplinary action against any employee who discloses an incident or occurrence involving safety. This policy shall not apply to information received by the company from a source other than the employee, or when the employee knowingly disregards established policies and procedures. We constantly improve our standards by learning from our own mistakes and errors as well as those made by others.

As the Chief Executive Officer I am ultimately accountable and fully committed to providing a safe operational and working environment. However I require you all to take responsibility to ensure Dragonair maintain its industry position as a leader in providing our customers, employees and business partners with the highest level of safety, quality and security.

Patrick Yeung
Chief Executive Officer
August 2011

KASQSPDMS-201108-REV2

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSD

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSD**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSD**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HSD**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSD**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSD**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSD**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSD**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSD** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	0756	HDA 0051	B-HSD	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	27-1189 02		07 APR 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	27-1182 02		07 APR 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE..... 21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)..... 22.01
LOW ENERGY WARNING..... 22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary..... 24.02
FLT ON BAT ONLY..... 24.03

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted]..... 26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED..... 27.01
SIDESTICK/RUDDER PEDALS STIFF..... 27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK..... 28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary..... 29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary..... 29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

LOSS OF BRAKING 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
EGPWS ALERTS 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
TCAS WARNINGS 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

7 ENG DUAL FAILURE - FUEL REMAINING 70.01
8 ENG DUAL FAILURE - NO FUEL REMAINING 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

9 **ABN-80 Miscellaneous**

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
Ditching 80.03
Forced Landing 80.04
EMER Descent 80.05
OVERWEIGHT LANDING..... 80.06
Stall Recovery 80.07
Stall Warning at Lift-Off 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR [redacted].....80.10
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit

Localization Title	Page	ID	Reason
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1

MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2

CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING.....USE FLAP 3

- **AT 1000 FT AGL:**
  L/G..... DOWN
- **When L/G down:** BATTERIES ONLY, USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**
  EMER ELEC PWR.....MAN ON
  ALTN LAW : PROT LOST

FLT ON BAT ONLY

Flight time on batteries only may be increased to at least 30 min as follows:

ENG MODE SEL..... NORM
ANTI ICE PITOT 1 C/B (D02)..... PULL
26 V ADIRU 1 C/B (F07).....PULL

CM 1 altitude, speed, and vertical speed indication on PFD are lost. Use standby instruments

- **7 min before landing:**

  ANTI ICE PITOT 1 C/B (D02)..... RESET

  - **After 1 min:**

CAUTION	This time delay is necessary to ensure reliable speed information even in icing conditions when the ADIRU is reset to ON.

    26 V ADIRU 1 C/B (F07).....RESET

Intentionally left blank

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    BUS TIE.....OFF
    GEN 2.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      GEN 2.....ON
      BUS TIE.....AUTO

    - **If faulty equipment not confirmed isolated, before L/G extension:**

      GEN 2.....ON

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT..... CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF

Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**

  CG location (if possible).....AFT

  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**

  FUEL IMBALANCE.....CONSIDER

  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE

- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**

  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**

  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE..... DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING..... MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL..... MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown)..... NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton..... PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION..... INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL..... FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**
    Decrease pitch attitude and accelerate.
  - **When speed is above VLS, and vertical speed is positive:**
    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**
  Adjust the flight path or initiate a go-around.
- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**
  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.
- **“SINK RATE” “DON’T SINK”:**
  Adjust pitch attitude and thrust to silence the alert.
- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**
  Perform a go-around.
- **“GLIDE SLOPE”:**
  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

- **If "H" is written on the "5" key:**

  H KEY..... PRESS
  Degree marker, 0 decimal point, ENT and CLR lights come on.
  A/C HEADING..... ENTER

- **If "H" is not written on the "5" key:**

  A/C HEADING..... ENTER
  Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
  Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
  Heading will be displayed on the associated ND.
  "HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.
  CREW OXY MASKS (Above FL 100).....ON
- **WHEN APU AVAIL FL < 200:**
  WING ANTI ICE..... OFF
  APU BLEED..... ON
  ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ⩤ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⩤ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ◁✻ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

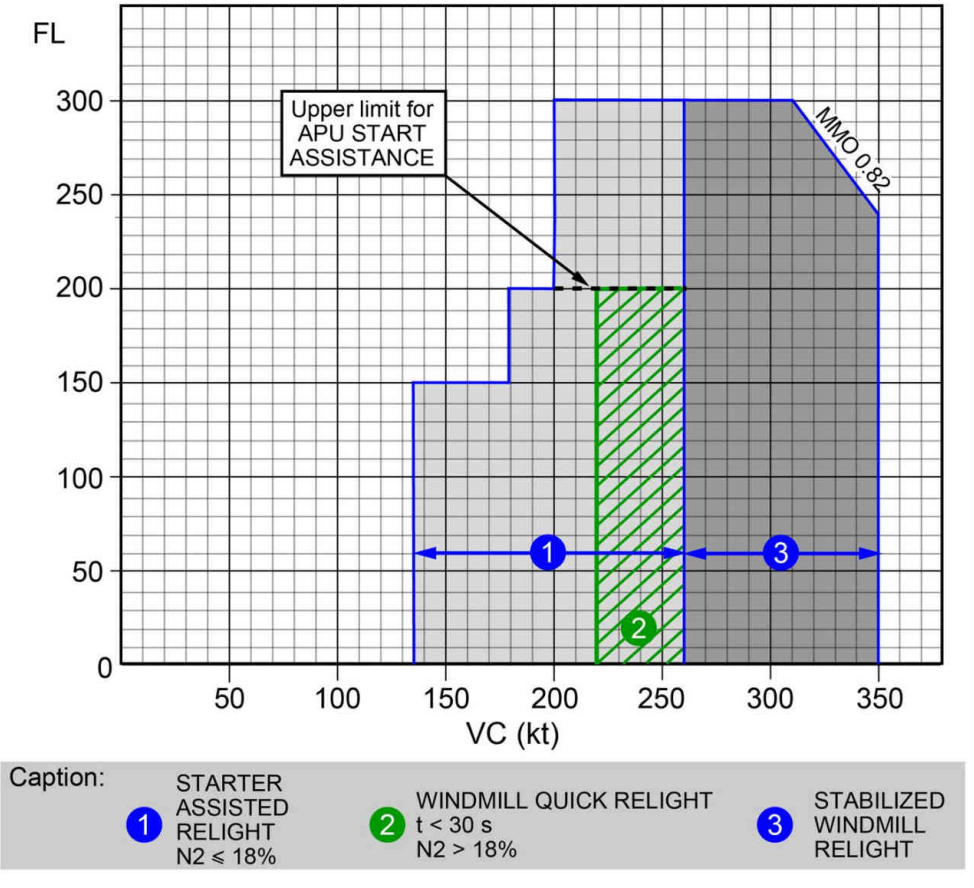
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

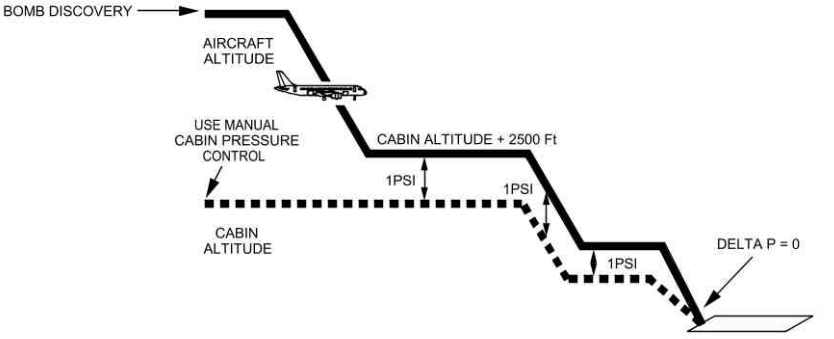
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

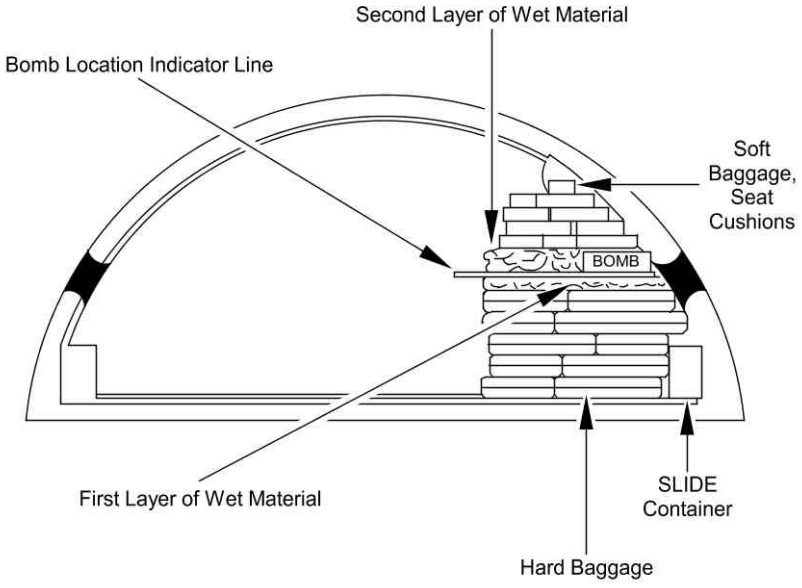
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SELECT 00
BARO.....SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SET
BARO.....SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ At takeoff

■ If before V1

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ If after V1

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

■ Airborne, initial climb or landing

THR LEVERS AT TOGA.....SET OR CONFIRM
AP (if engaged).....KEEP
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *If during taxi, when the aircraft is moving, WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT ECAM alert appears along with the NW STRG DISC memo, the flight crew may attempt to perform only one BSCU reset. If the mentioned alert and memo disappear after this BSCU reset, continue the flight.* *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

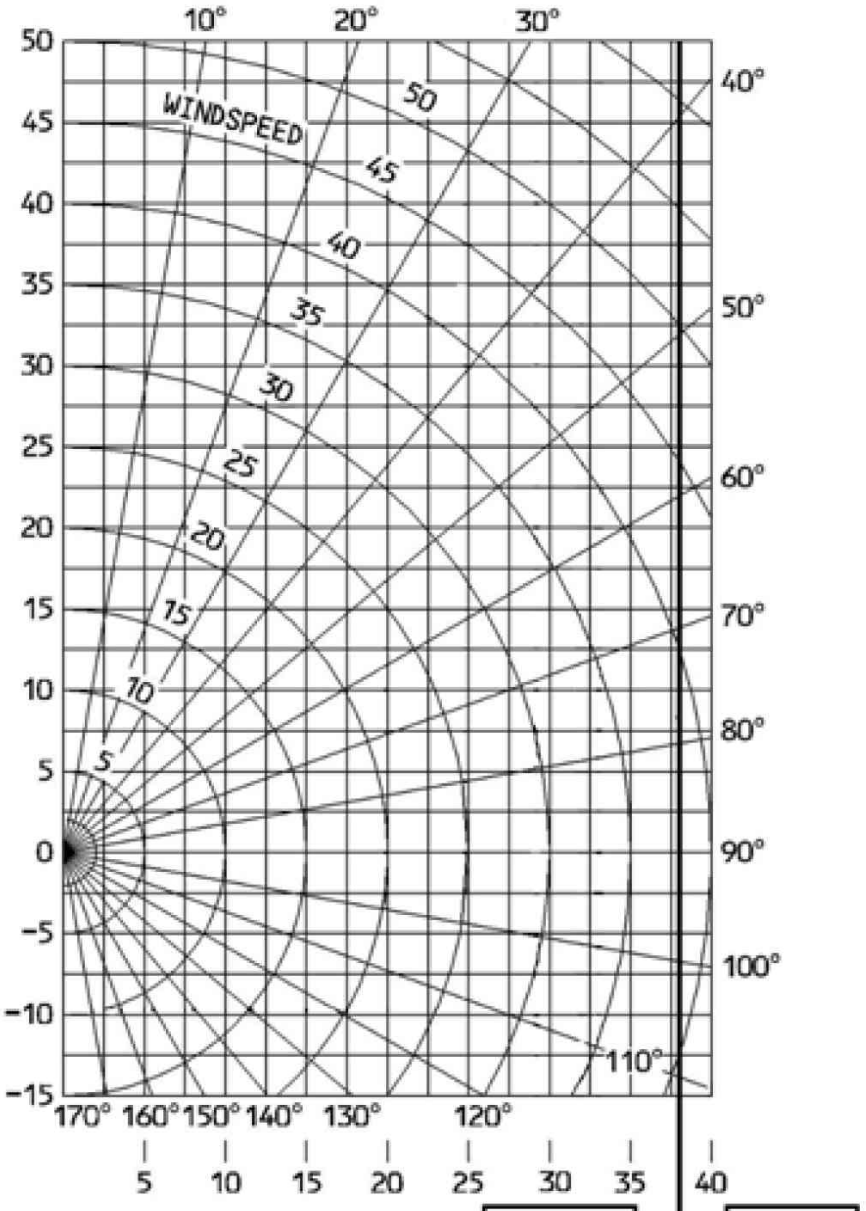
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

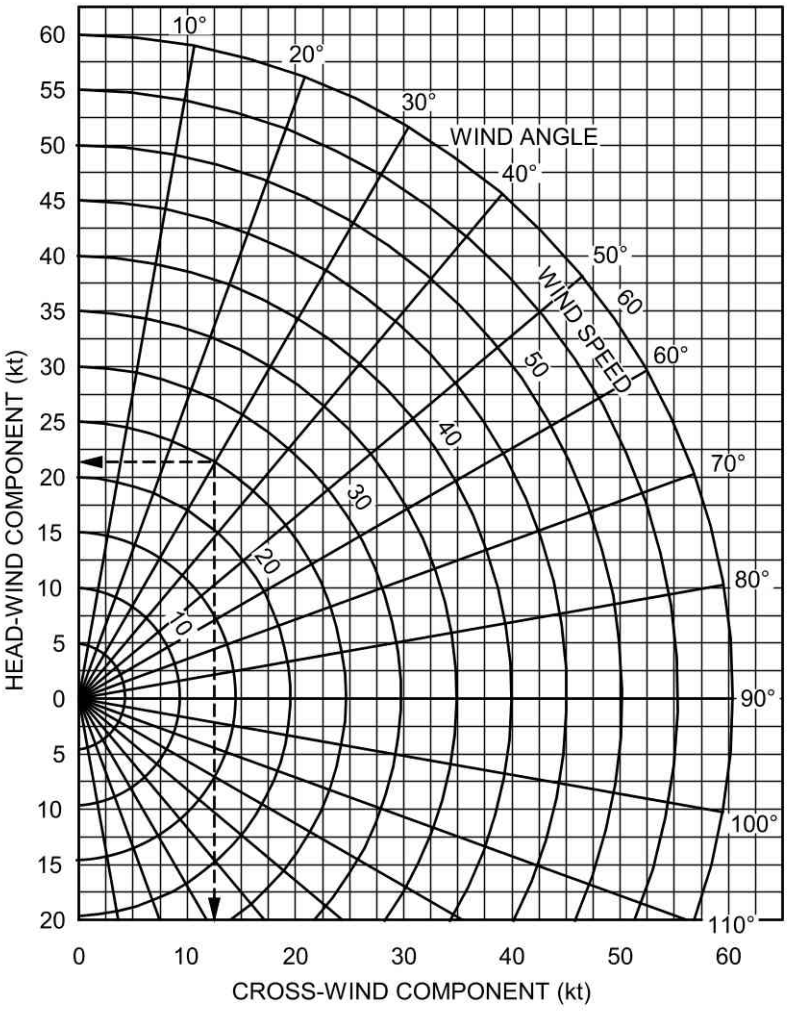
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

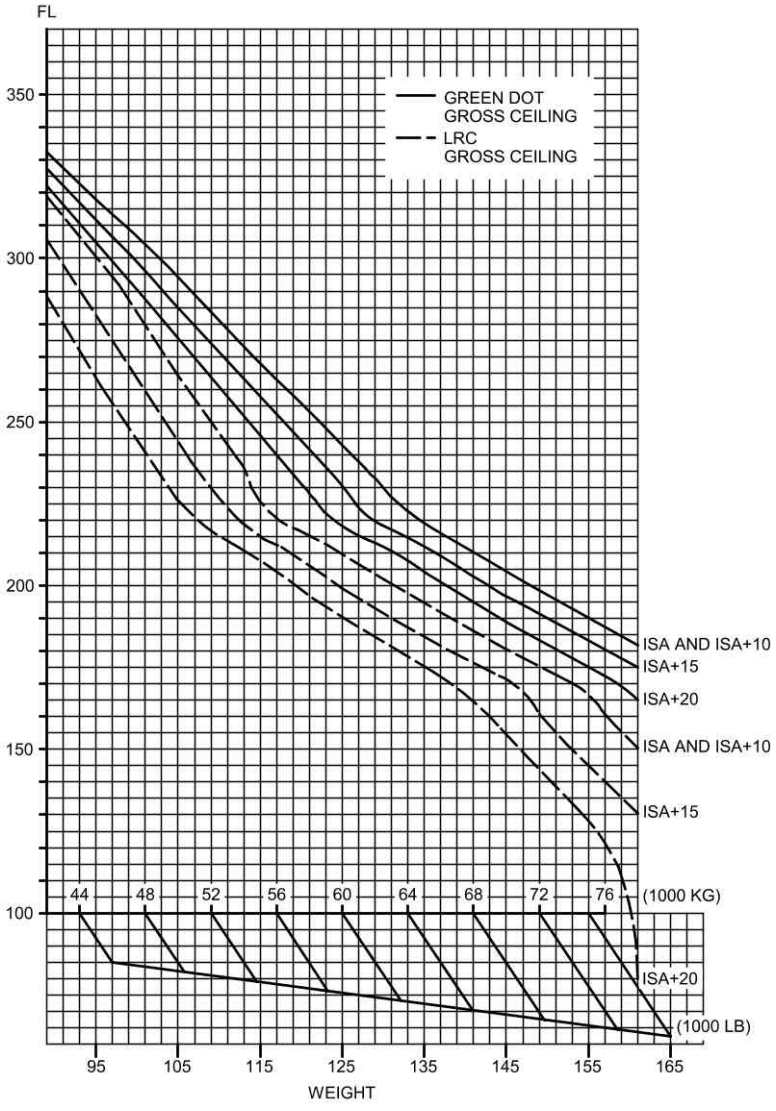
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

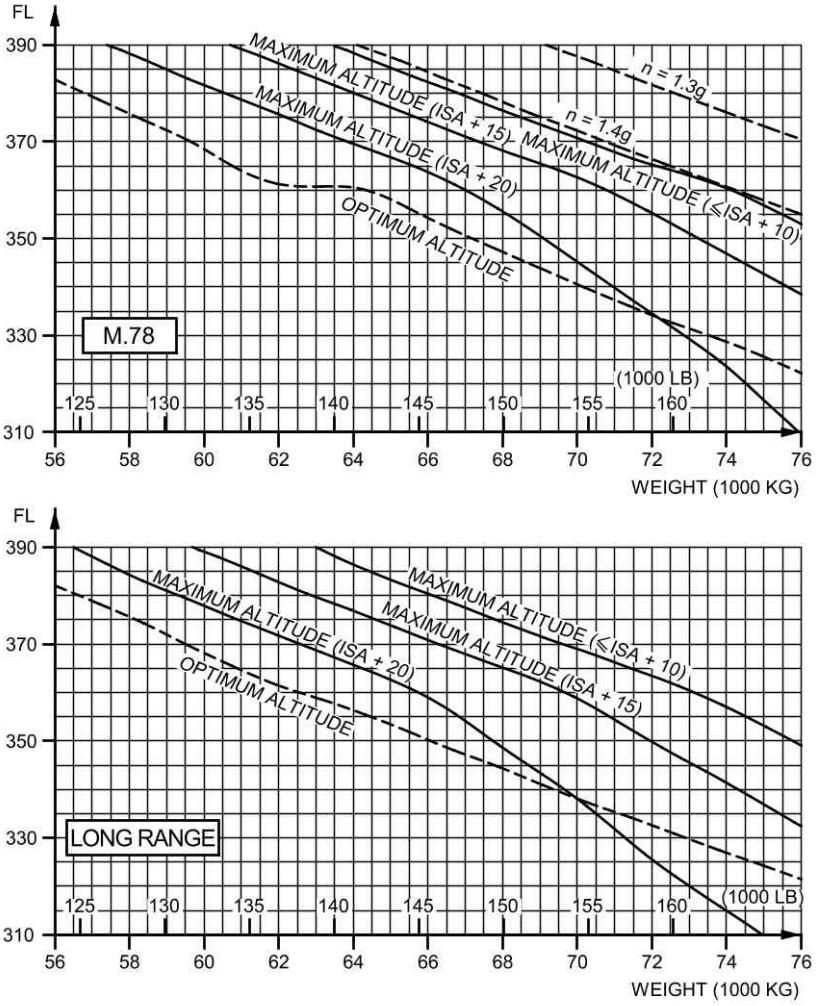
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

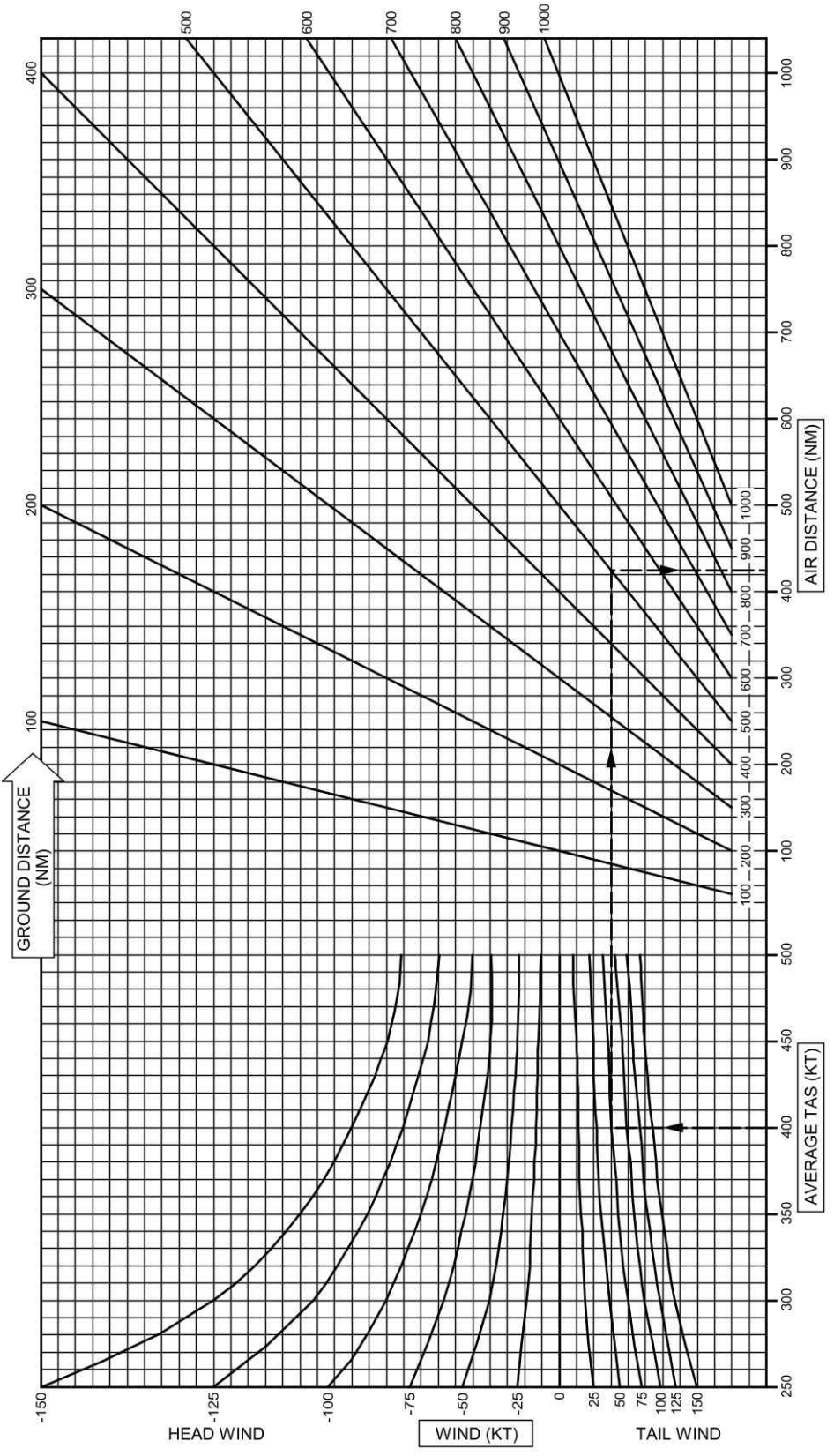
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

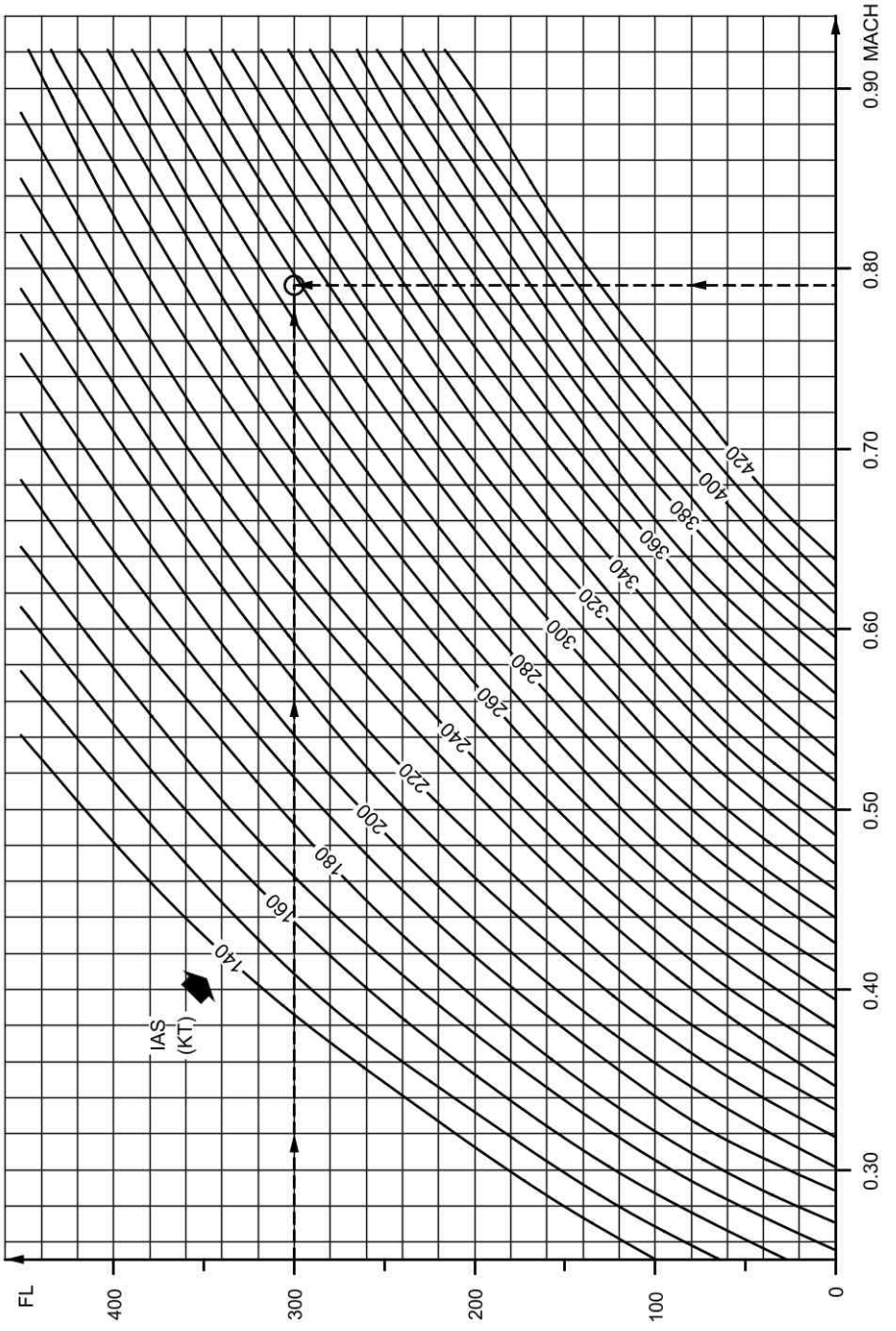
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

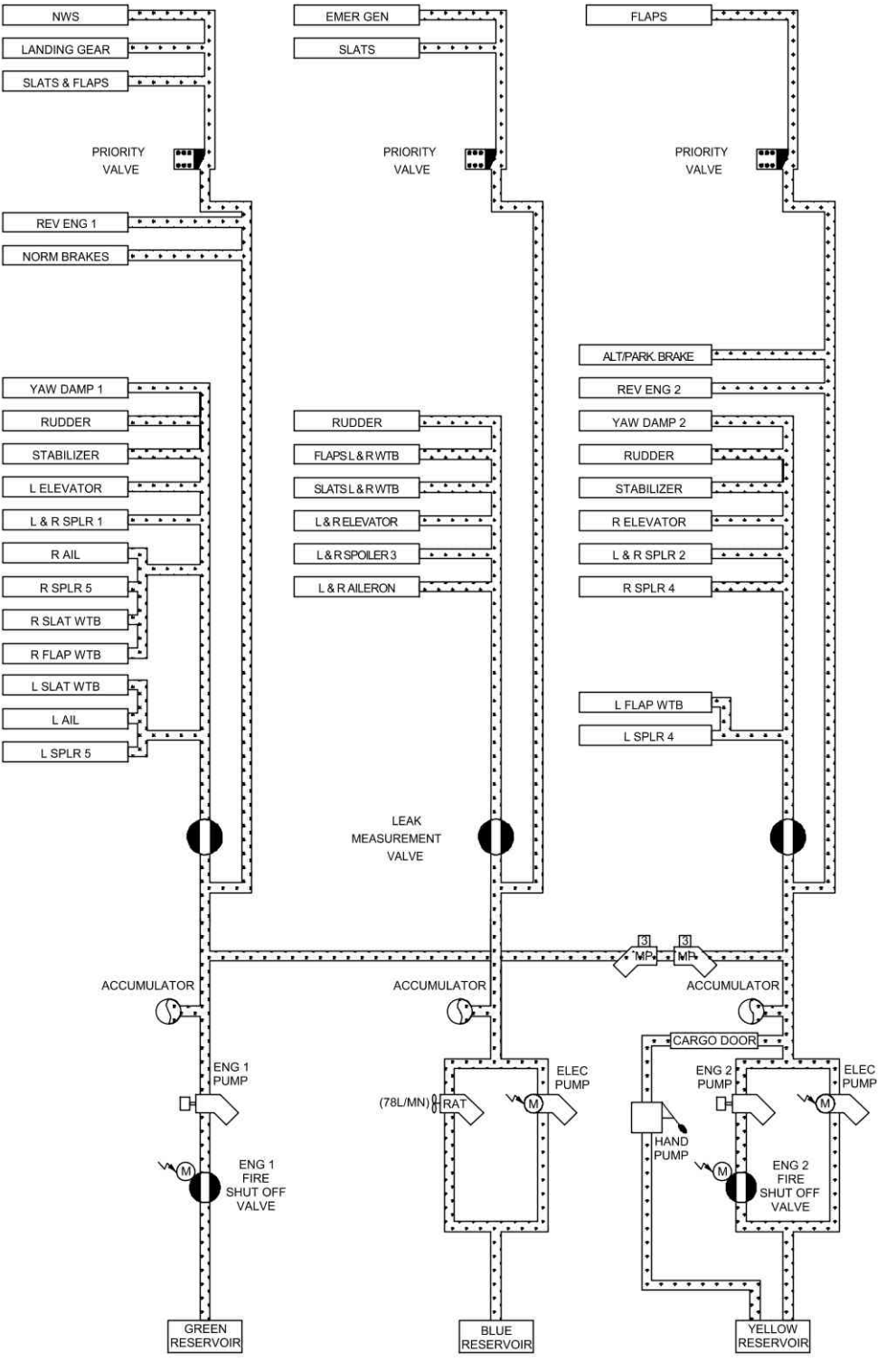
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

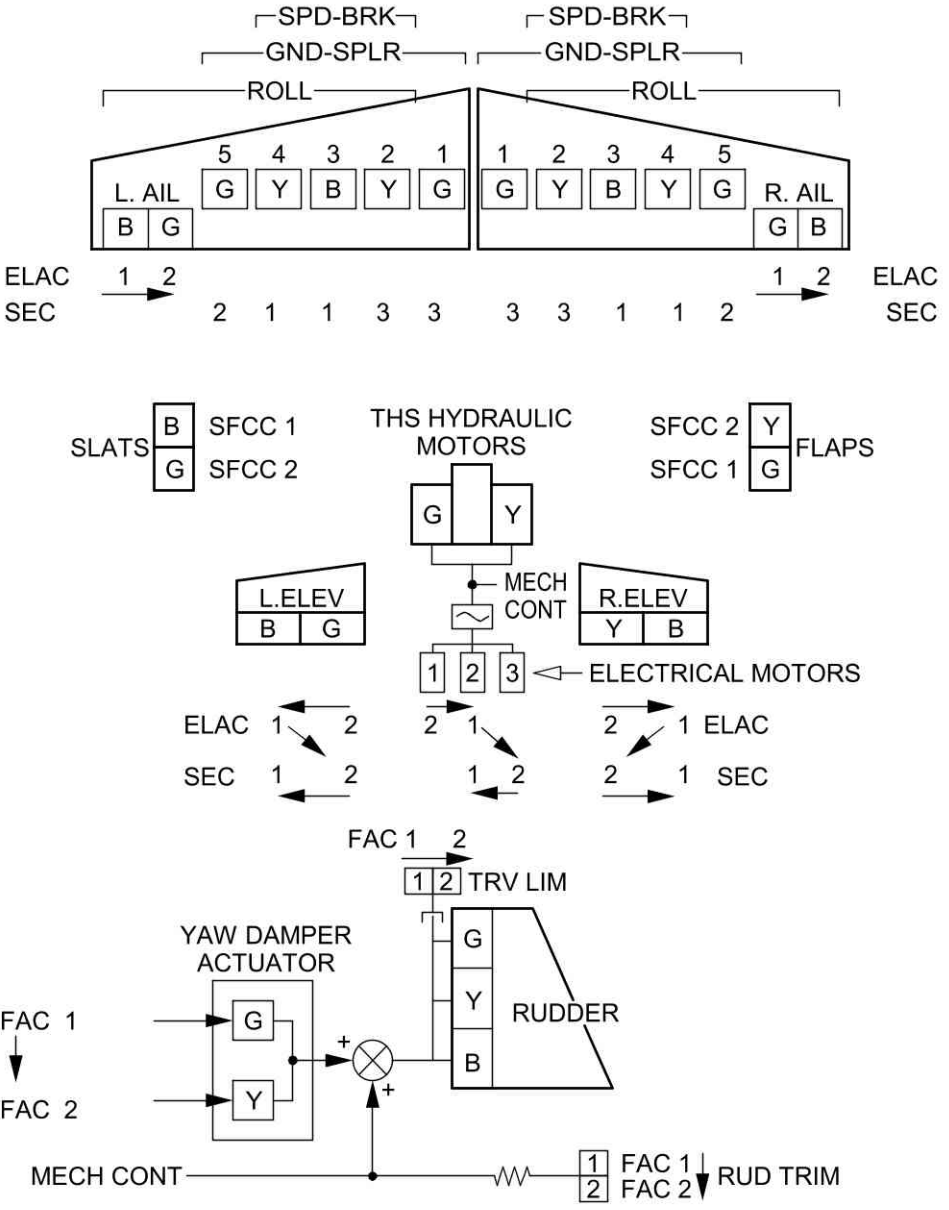
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSD**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSD**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSD**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSD**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSD**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	
– SPD BRK .....DO NOT USE	INOP SYS
LDG DIST PROC.....APPLY	SPLR(affected)
	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSD**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSD**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSE

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSE**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSE**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HSE**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSE**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSE**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSE**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSE**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSE** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	0784	HDA 0052	B-HSE	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	27-1189 02		07 APR 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P4287	31-1113 30 31-1264 04	07 APR 11	INDICATING/RECORDING SYSTEMS - FWC - DEFINE OEB REMINDER WITHIN FWC STD -E1 AND SUBSEQUENT
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE..... 21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)..... 22.01
LOW ENERGY WARNING..... 22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary..... 24.02
FLT ON BAT ONLY..... 24.03

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted]..... 26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED..... 27.01
SIDESTICK/RUDDER PEDALS STIFF..... 27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK..... 28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary..... 29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary..... 29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

7 ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
8 ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

9 ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR [redacted].....80.10
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - FUEL REMAINING	70.01	1	Documentation update: Addition of "ENG DUAL FAILURE - FUEL REMAINING" documentary unit

Localization Title	Page	ID	Reason
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING	70.02	2	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	3	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	4	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	5	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2.....OFF
BLOWER + EXTRACT.....OVRD
Cabin air is extracted overboard.
ΔP..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2.....OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2.....OFF
BLOWER + EXTRACT..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1

MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2

CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING.....USE FLAP 3

- **AT 1000 FT AGL:**
  L/G..... DOWN
- **When L/G down:** BATTERIES ONLY, USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**
  EMER ELEC PWR.....MAN ON
  ALTN LAW : PROT LOST

FLT ON BAT ONLY

Flight time on batteries only may be increased to at least 30 min as follows:

ENG MODE SEL..... NORM
ANTI ICE PITOT 1 C/B (D02)..... PULL
26 V ADIRU 1 C/B (F07).....PULL

CM 1 altitude, speed, and vertical speed indication on PFD are lost. Use standby instruments

- **7 min before landing:**

  ANTI ICE PITOT 1 C/B (D02)..... RESET

  - **After 1 min:**

CAUTION	This time delay is necessary to ensure reliable speed information even in icing conditions when the ADIRU is reset to ON.

    26 V ADIRU 1 C/B (F07).....RESET

Intentionally left blank

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

● **If fuel vapors:**

CAB FANS.....ON
PACK 1+2..... OFF

● **If no fuel vapors:**

CAB FANS.....OFF
PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

● **At FL 100 OR MEA:**

APU MASTER SW (if in ELEC EMER CONFIG)... ON
PACK 1+2.....OFF
MODE SEL.....MAN
MAN V/S CTL..... FULL UP
RAM AIR.....ON
APU MASTER SW.....OFF

● **If smoke persists, open CKPT window:**

MAX SPEED.....200 KT
COCKPIT DOOR.....OPEN
HEADSETS.....ON
PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    BUS TIE.....OFF
    GEN 2.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      GEN 2.....ON
      BUS TIE.....AUTO

    - **If faulty equipment not confirmed isolated, before L/G extension:**

      GEN 2.....ON

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**

  ELEC EMER CONFIG..... CONSIDER

- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**

  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF

EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**

  APU GEN.....OFF

  GEN 2.....OFF

ELEC EMER CONFIG

APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**

  GEN 2.....ON

  EMER ELEC GEN 1 LINE.....ON

- **WHEN A/C IS STOPPED:**

  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1 MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2 CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3 NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF

Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**

  CG location (if possible).....AFT

  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**

  FUEL IMBALANCE.....CONSIDER

  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE

- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**

  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**

  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE..... DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING..... MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL..... MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown)..... NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton..... PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION..... INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**
    Decrease pitch attitude and accelerate.
  - **When speed is above VLS, and vertical speed is positive:**
    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**
  Adjust the flight path or initiate a go-around.
- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**
  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.
- **“SINK RATE” “DON’T SINK”:**
  Adjust pitch attitude and thrust to silence the alert.
- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**
  Perform a go-around.
- **“GLIDE SLOPE”:**
  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.
  CREW OXY MASKS (Above FL 100).....ON

- **WHEN APU AVAIL FL < 200:**
  WING ANTI ICE..... OFF
  APU BLEED..... ON
  ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

2

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ◁ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

3

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

4 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

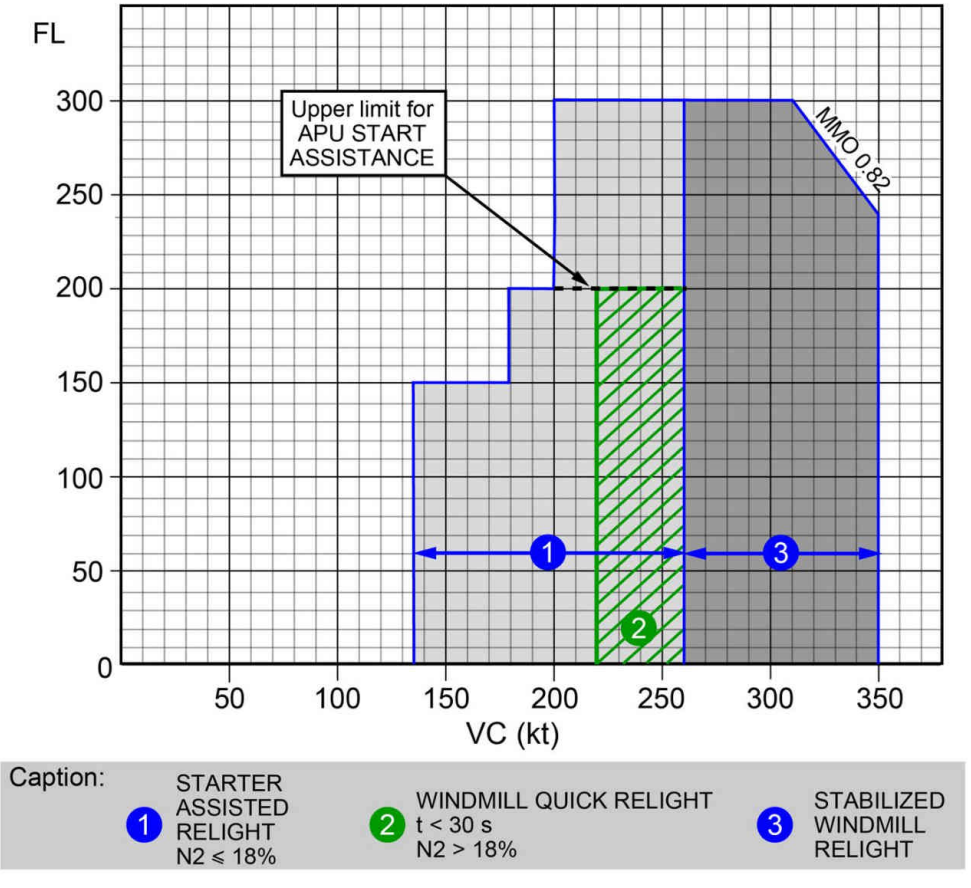
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

5

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

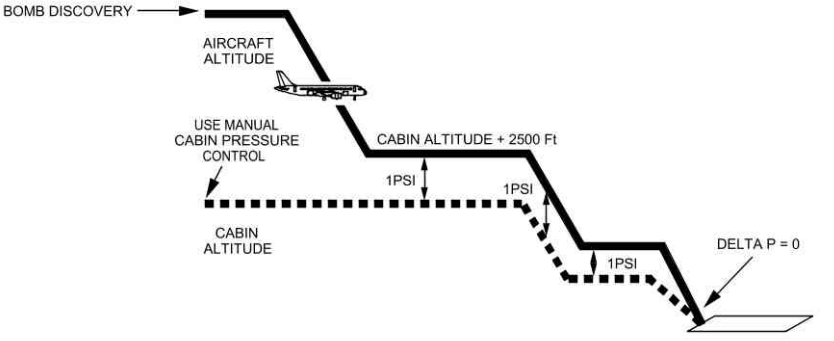
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

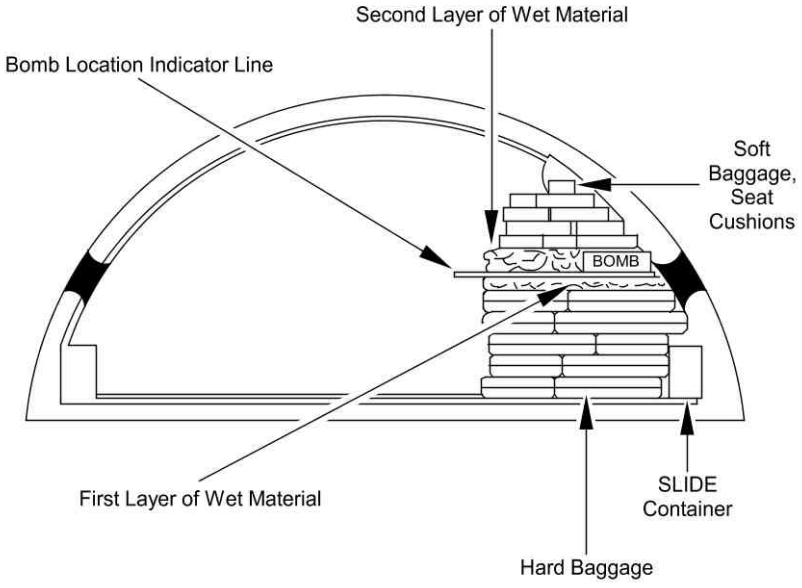
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SELECT 00
BARO.....SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS..... MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ At takeoff

■ If before V1

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ If after V1

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

■ Airborne, initial climb or landing

THR LEVERS AT TOGA.....SET OR CONFIRM
AP (if engaged).....KEEP
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*
  On the rear C/B panel :
  - *ANTI ICE L WSHLD C/B AF10 (123VU)*
  - *ANTI ICE R WSHLD C/B AF03 (123VU)*
  - *ANTI ICE/WINDOWS L C/B X14 (122VU)*
  - *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL..... 230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL..... AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

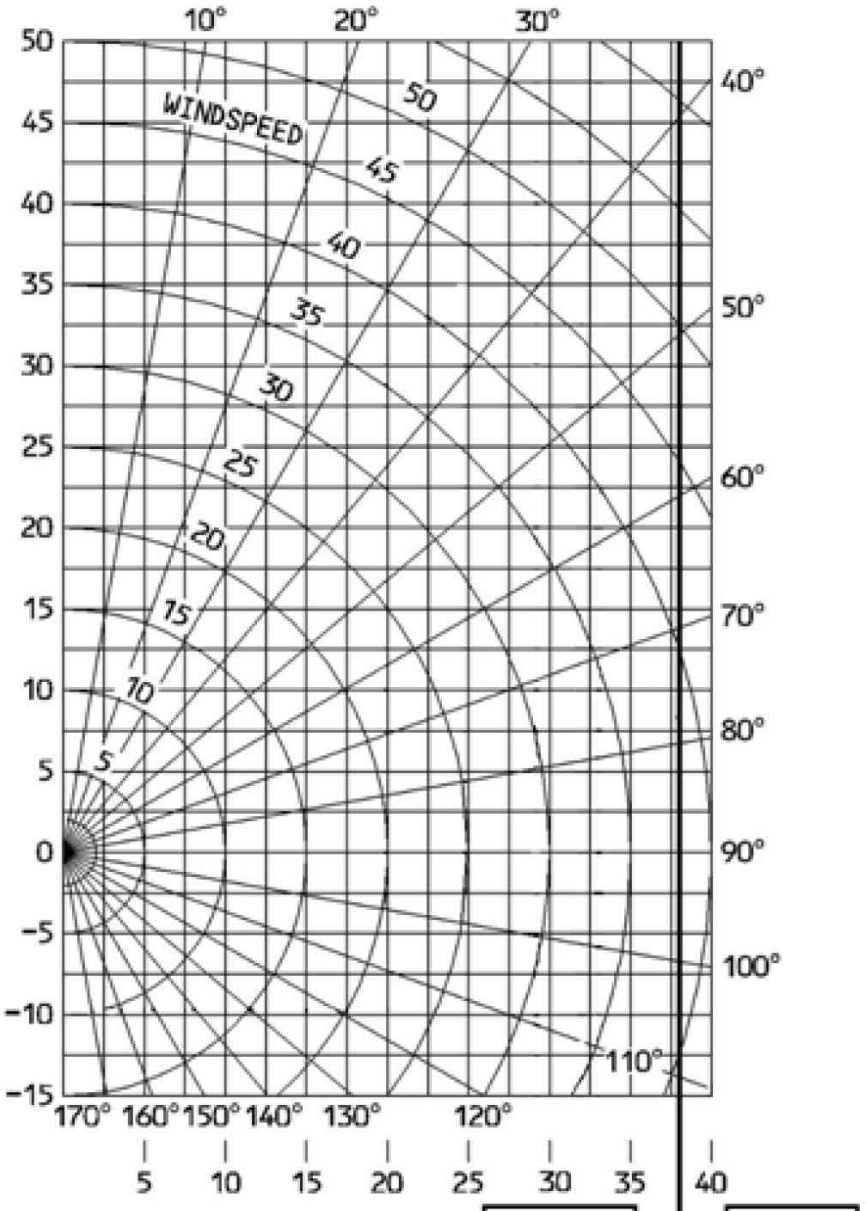
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT) CG ≥ 25 %					
W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

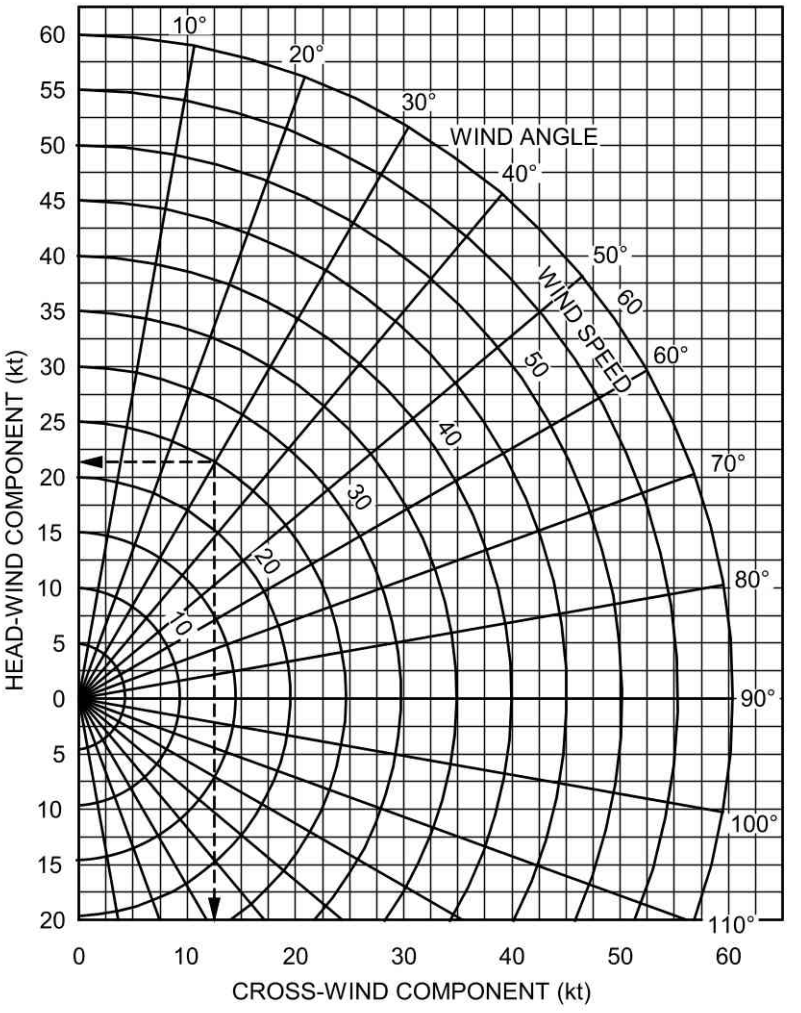
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

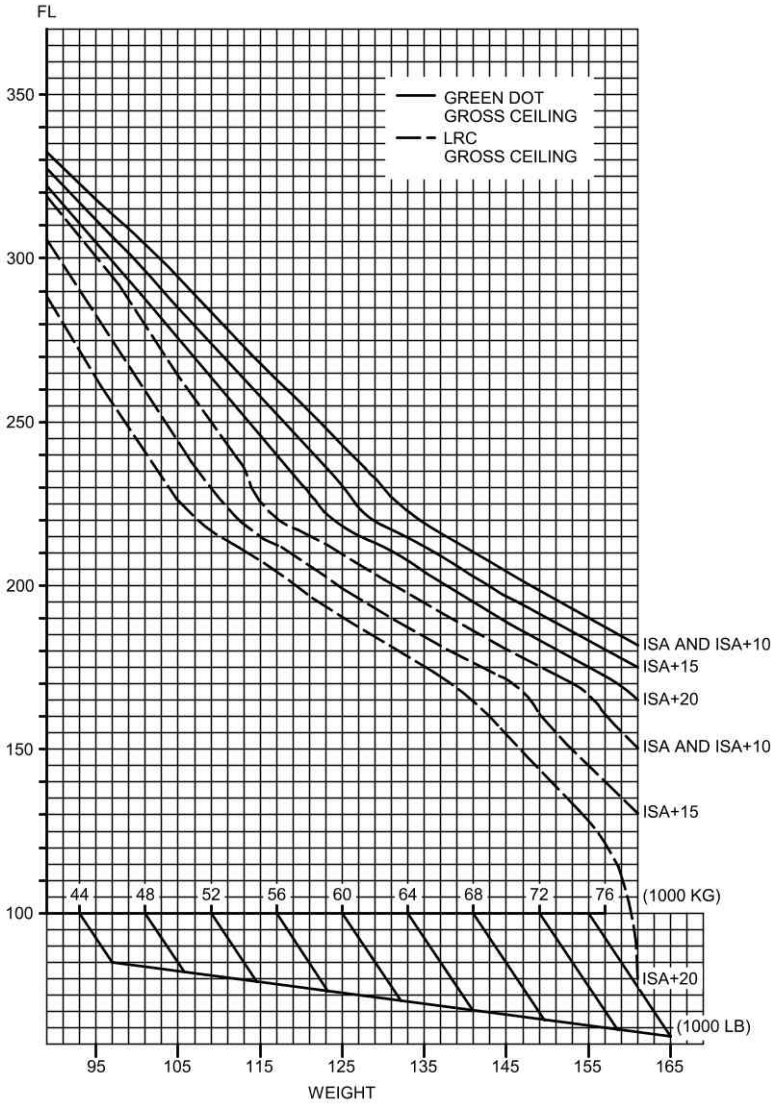
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

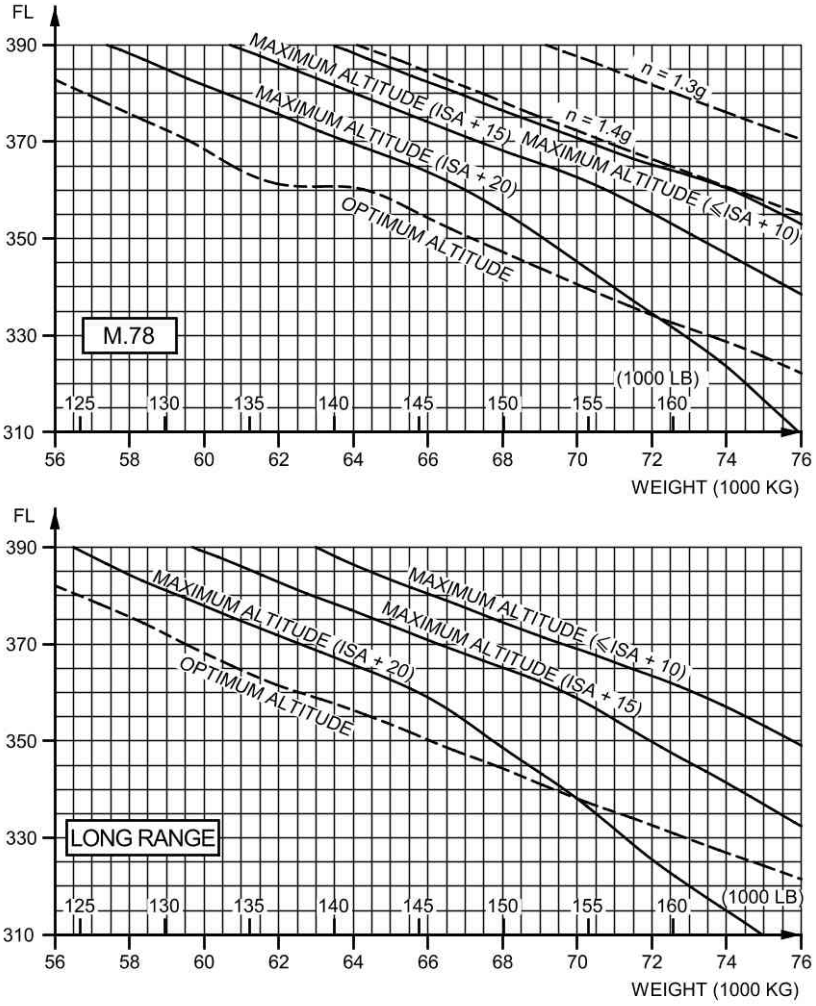
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

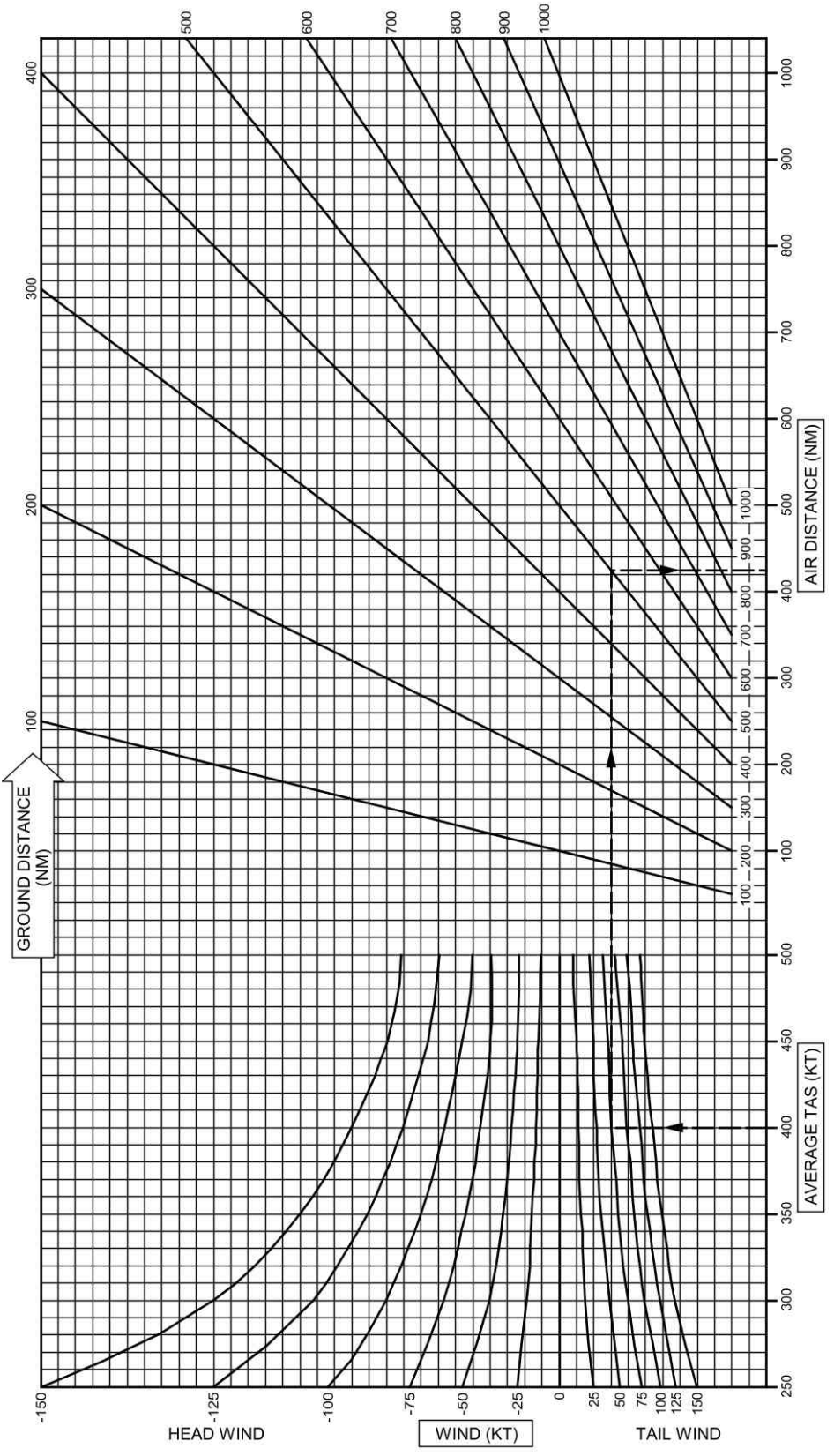
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

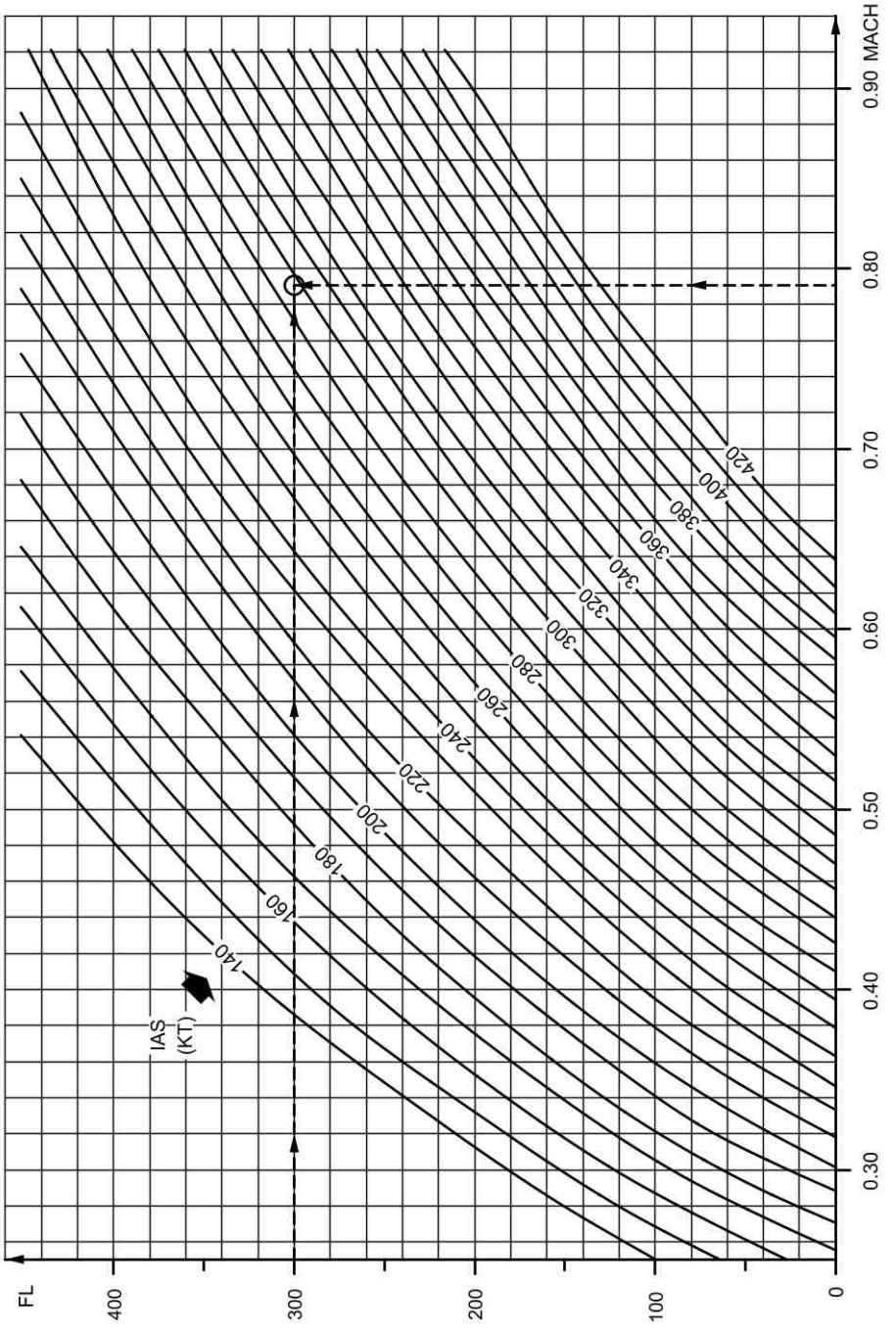
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

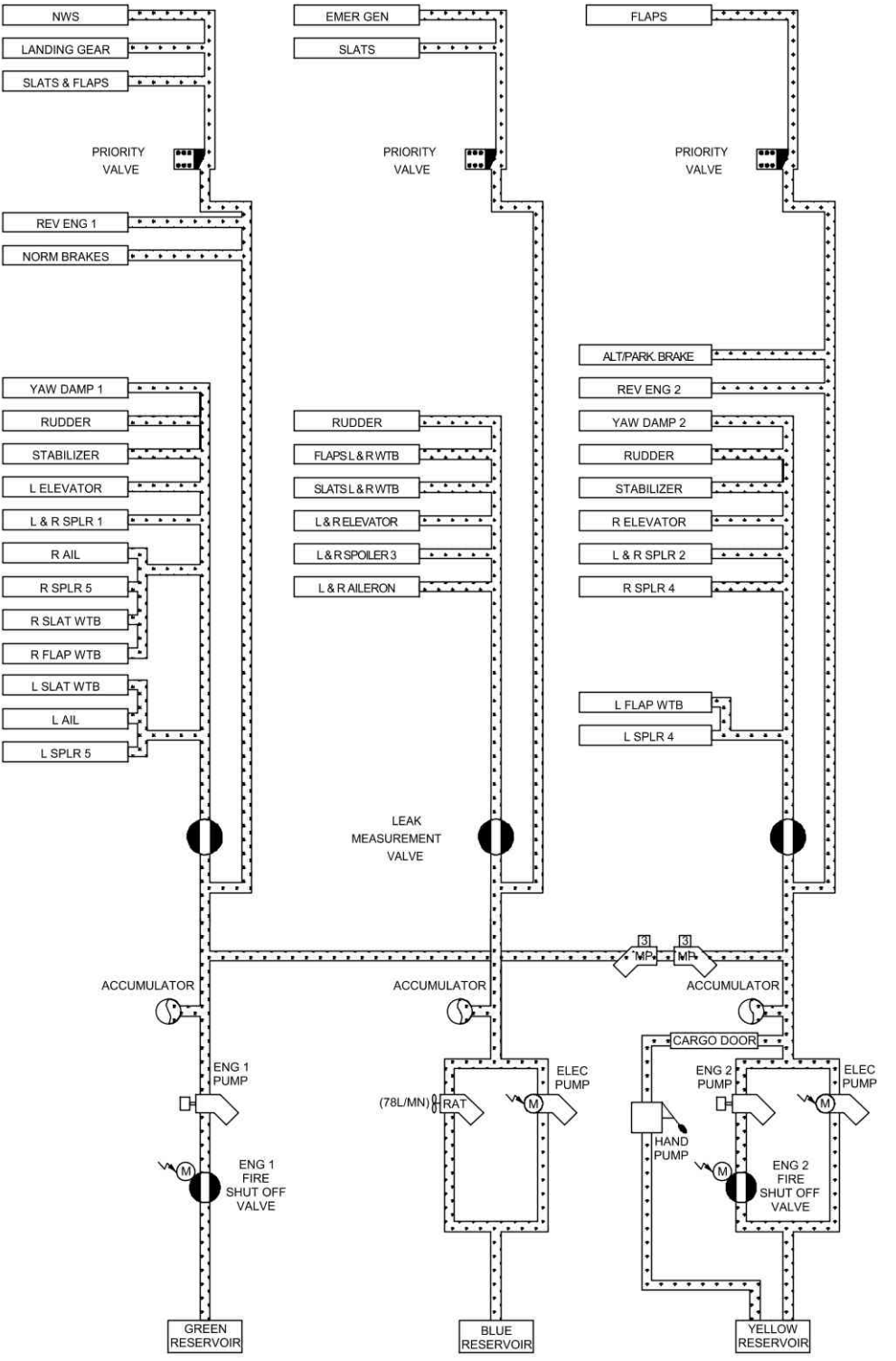
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

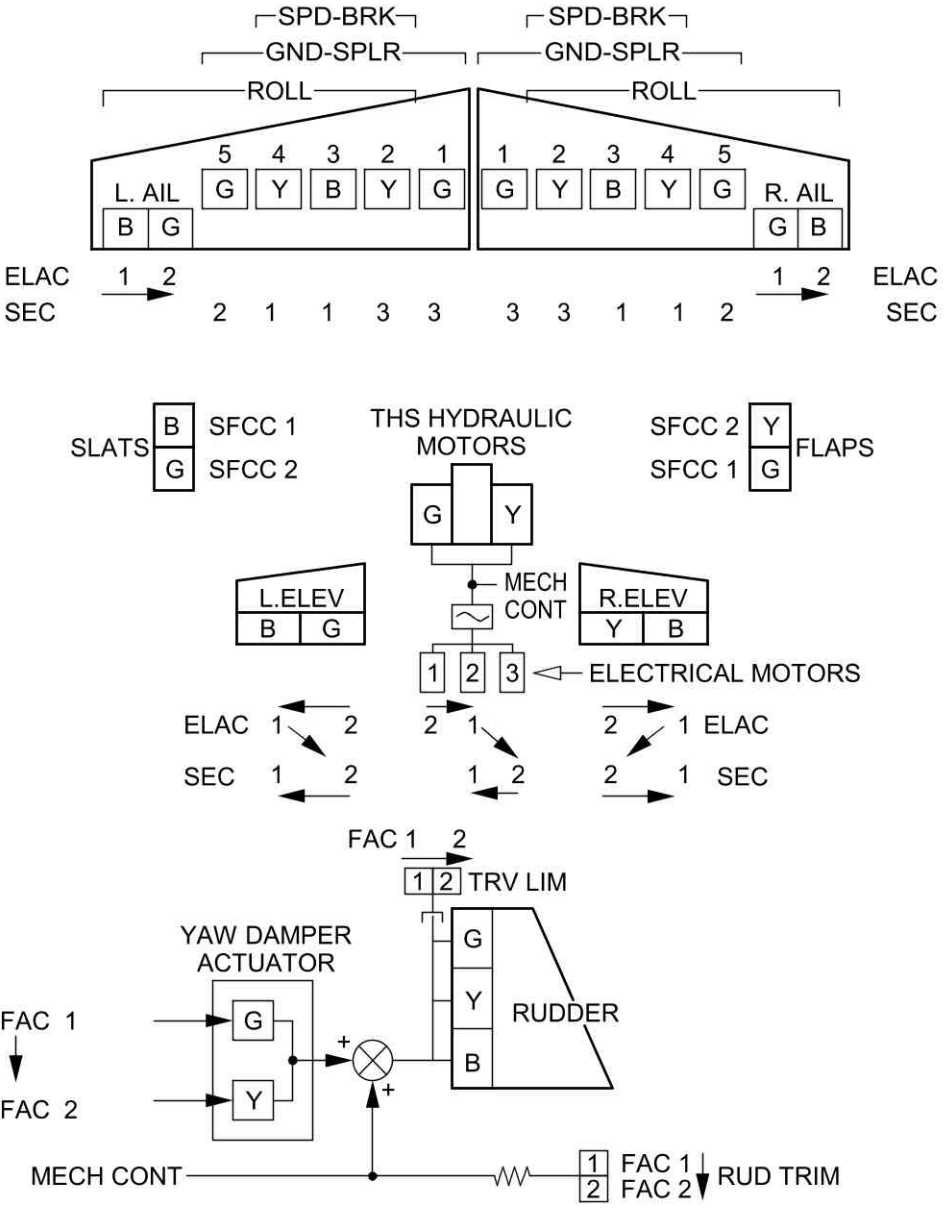
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSE**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSE**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSE**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSE**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSE**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSE**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSE**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSG

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSG**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSG**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HSG**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSG**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSG**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSG**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSG**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSG** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	0812	HDA 0001	B-HSG	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	32-1361 00		30 MAY 12	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU L4.9B (EM2) FROM STD BSCU STD 10 OR 10.1 (PRE EM2).
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02
FLT ON BAT ONLY..... 24.03

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

7 ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
8 ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

9 ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR [redacted].....80.10
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit

Localization Title	Page	ID	Reason
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1

MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2

CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING.....USE FLAP 3

- **AT 1000 FT AGL:**
  L/G..... DOWN
- **When L/G down:** BATTERIES ONLY, USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**
  EMER ELEC PWR.....MAN ON
  ALTN LAW : PROT LOST

FLT ON BAT ONLY

Flight time on batteries only may be increased to at least 30 min as follows:

ENG MODE SEL..... NORM
ANTI ICE PITOT 1 C/B (D02)..... PULL
26 V ADIRU 1 C/B (F07).....PULL

CM 1 altitude, speed, and vertical speed indication on PFD are lost. Use standby instruments

- **7 min before landing:**

  ANTI ICE PITOT 1 C/B (D02)..... RESET

  - **After 1 min:**

CAUTION	This time delay is necessary to ensure reliable speed information even in icing conditions when the ADIRU is reset to ON.

    26 V ADIRU 1 C/B (F07).....RESET

Intentionally left blank

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2..... OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    BUS TIE.....OFF
    GEN 2.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      GEN 2.....ON
      BUS TIE.....AUTO

    - **If faulty equipment not confirmed isolated, before L/G extension:**

      GEN 2.....ON

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**

  ELEC EMER CONFIG..... CONSIDER

- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**

  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF

EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**

  APU GEN.....OFF

  GEN 2.....OFF

ELEC EMER CONFIG

APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**

  GEN 2.....ON

  EMER ELEC GEN 1 LINE.....ON

- **WHEN A/C IS STOPPED:**

  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  FUEL X FEED..... USE AS RQRD
  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF

Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**

  CG location (if possible).....AFT

  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**

  FUEL IMBALANCE.....CONSIDER

  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE

- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**

  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**

  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

- **If "H" is written on the "5" key:**

  H KEY..... PRESS
  Degree marker, 0 decimal point, ENT and CLR lights come on.
  A/C HEADING..... ENTER

- **If "H" is not written on the "5" key:**

  A/C HEADING..... ENTER
  Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
  Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
  Heading will be displayed on the associated ND.
  "HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.
  CREW OXY MASKS (Above FL 100).....ON
- **WHEN APU AVAIL FL < 200:**
  WING ANTI ICE..... OFF
  APU BLEED..... ON
  ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

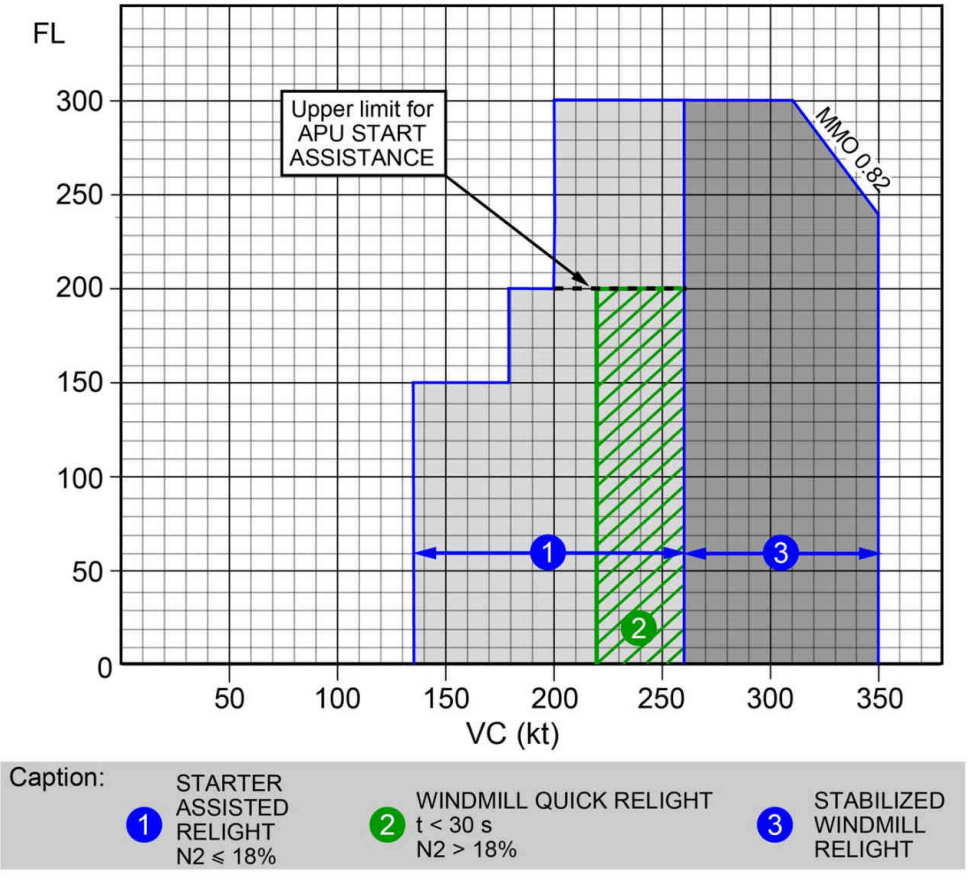
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

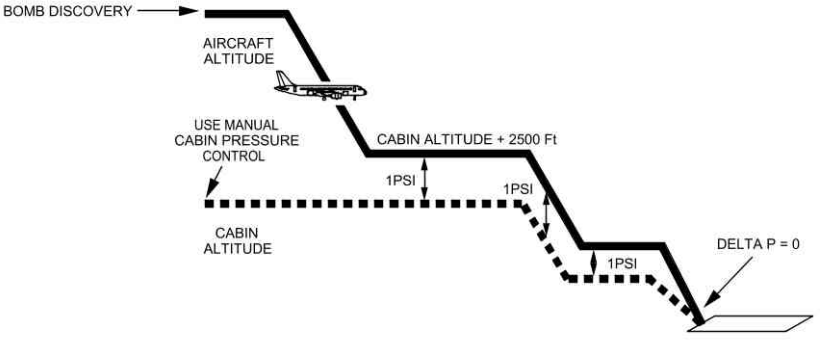
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

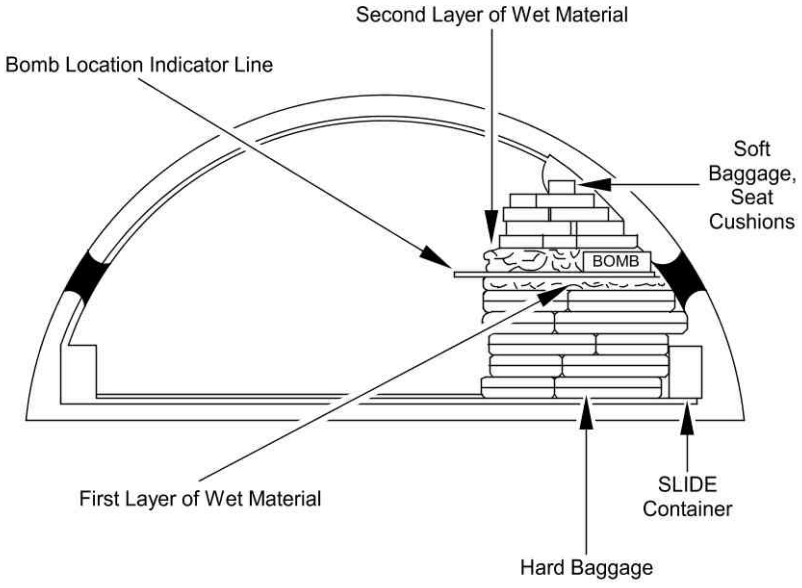
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SELECT 00
BARO.....SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS..... MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ At takeoff

■ If before V1

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ If after V1

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

■ Airborne, initial climb or landing

THR LEVERS AT TOGA.....SET OR CONFIRM
AP (if engaged).....KEEP
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

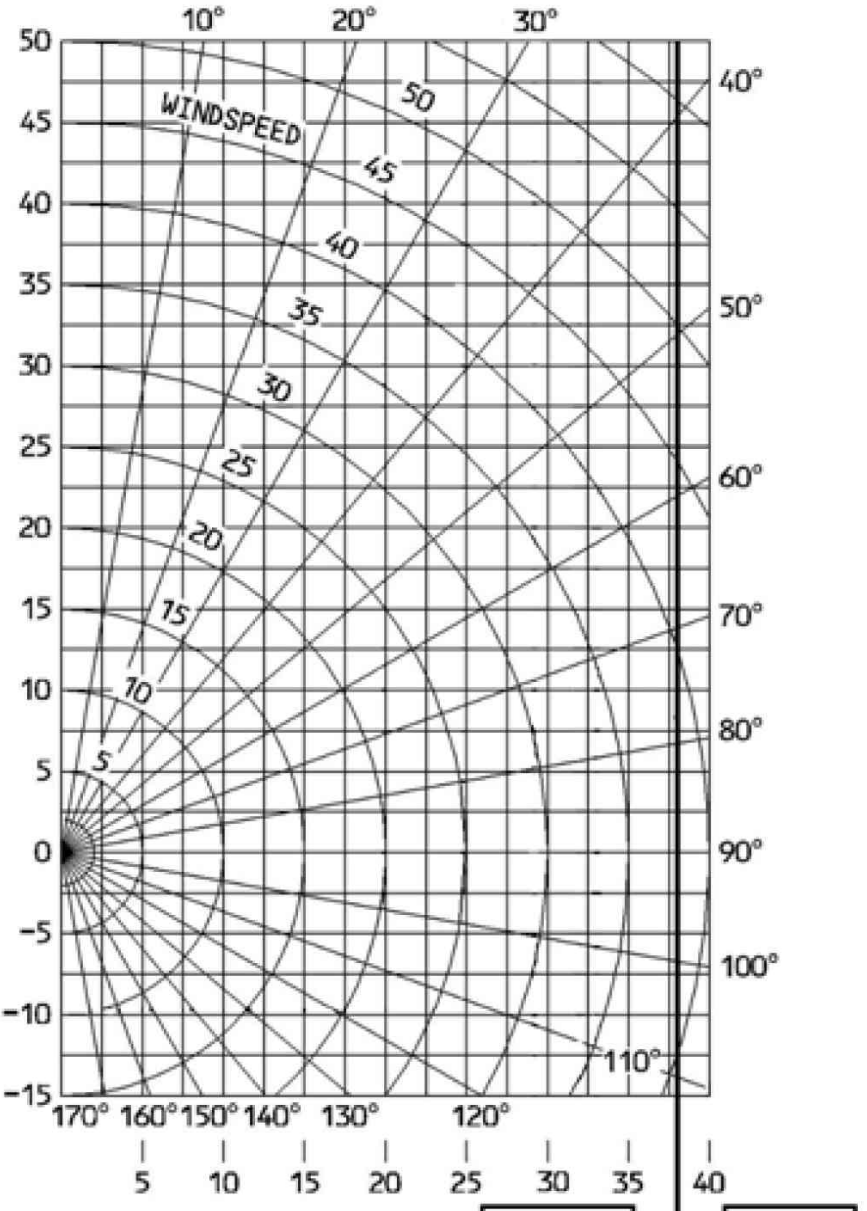
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

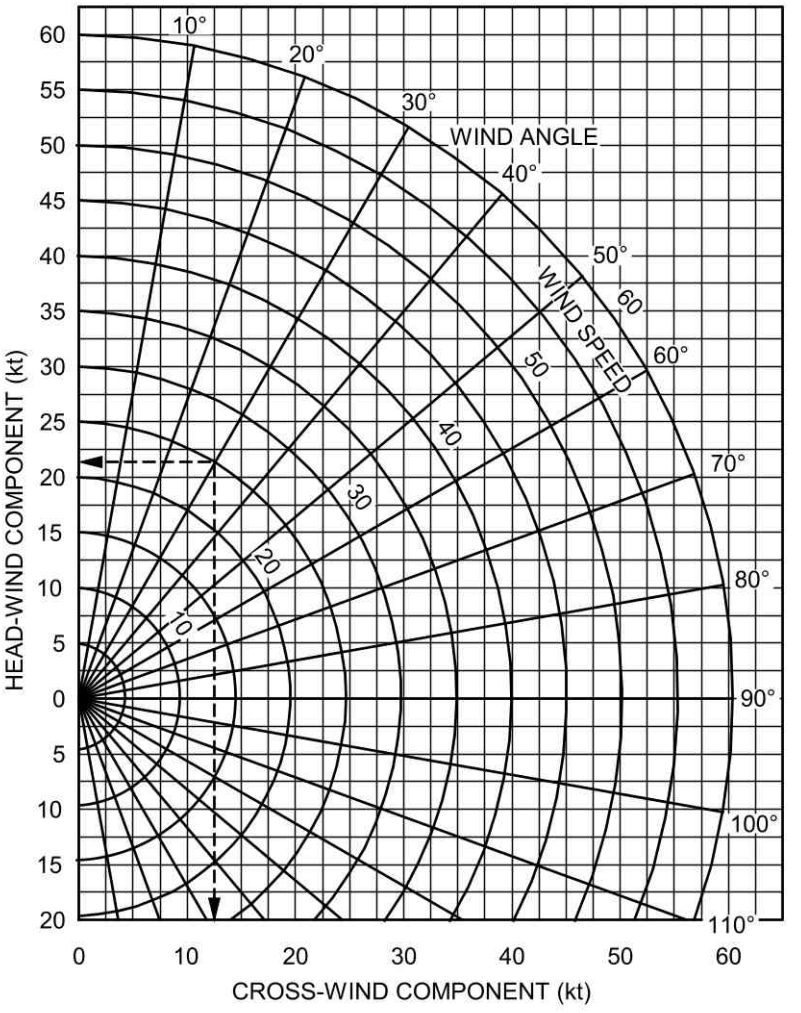
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

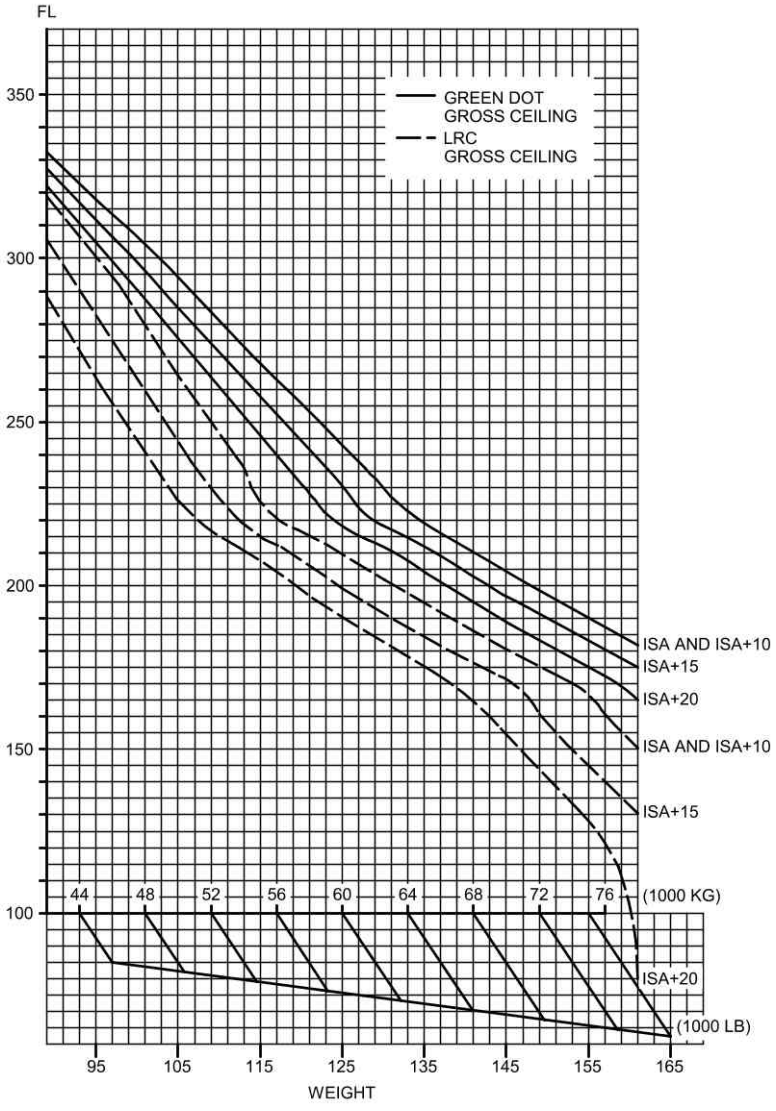
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

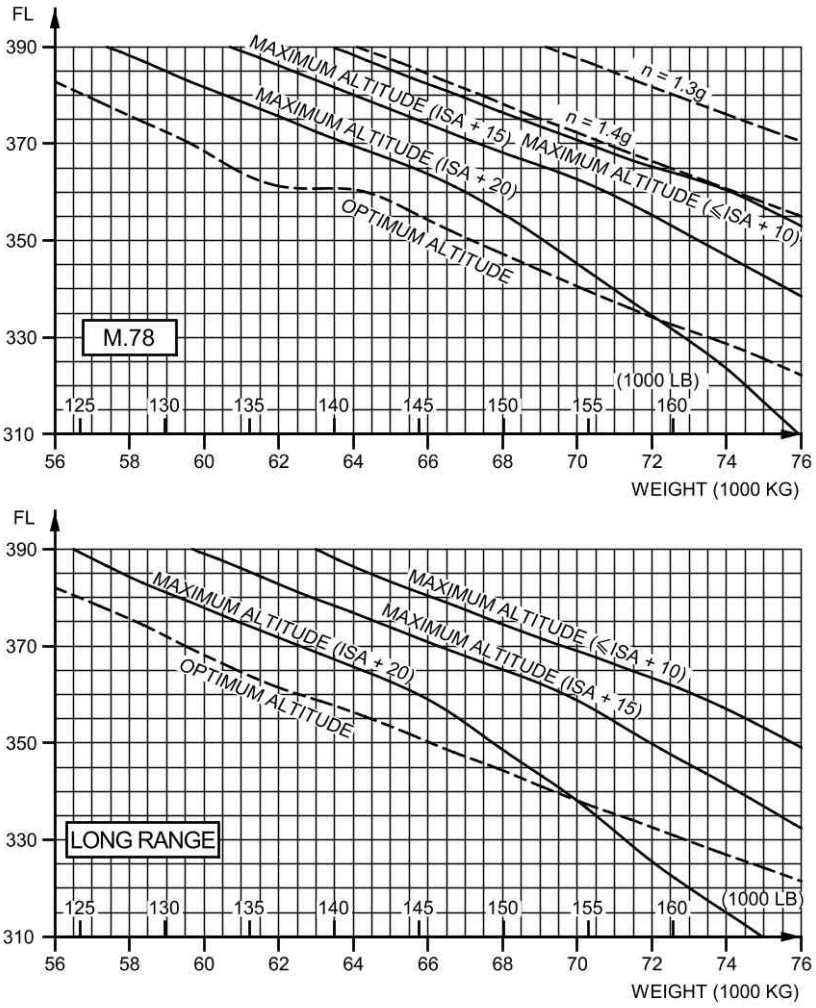
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

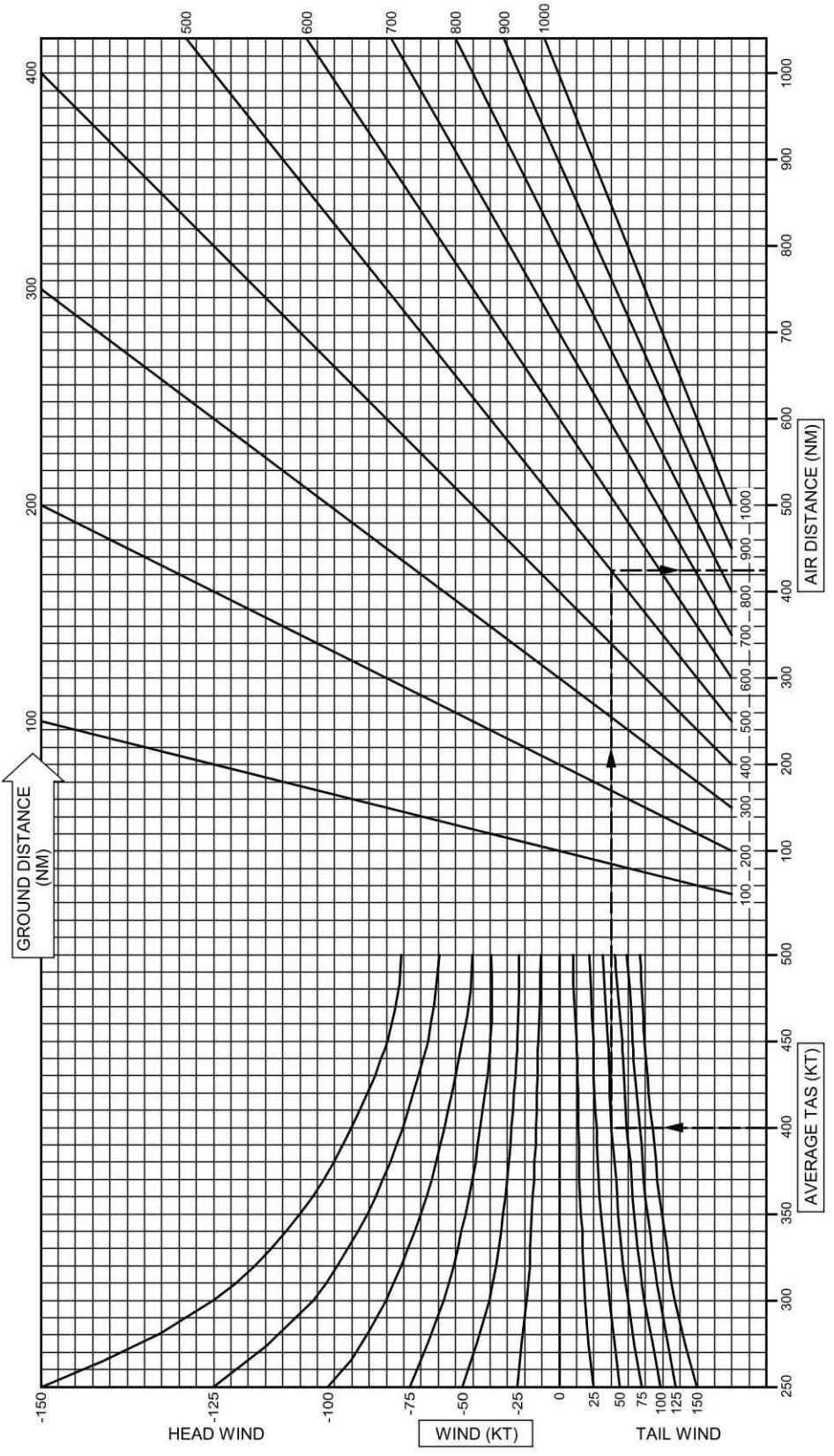
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

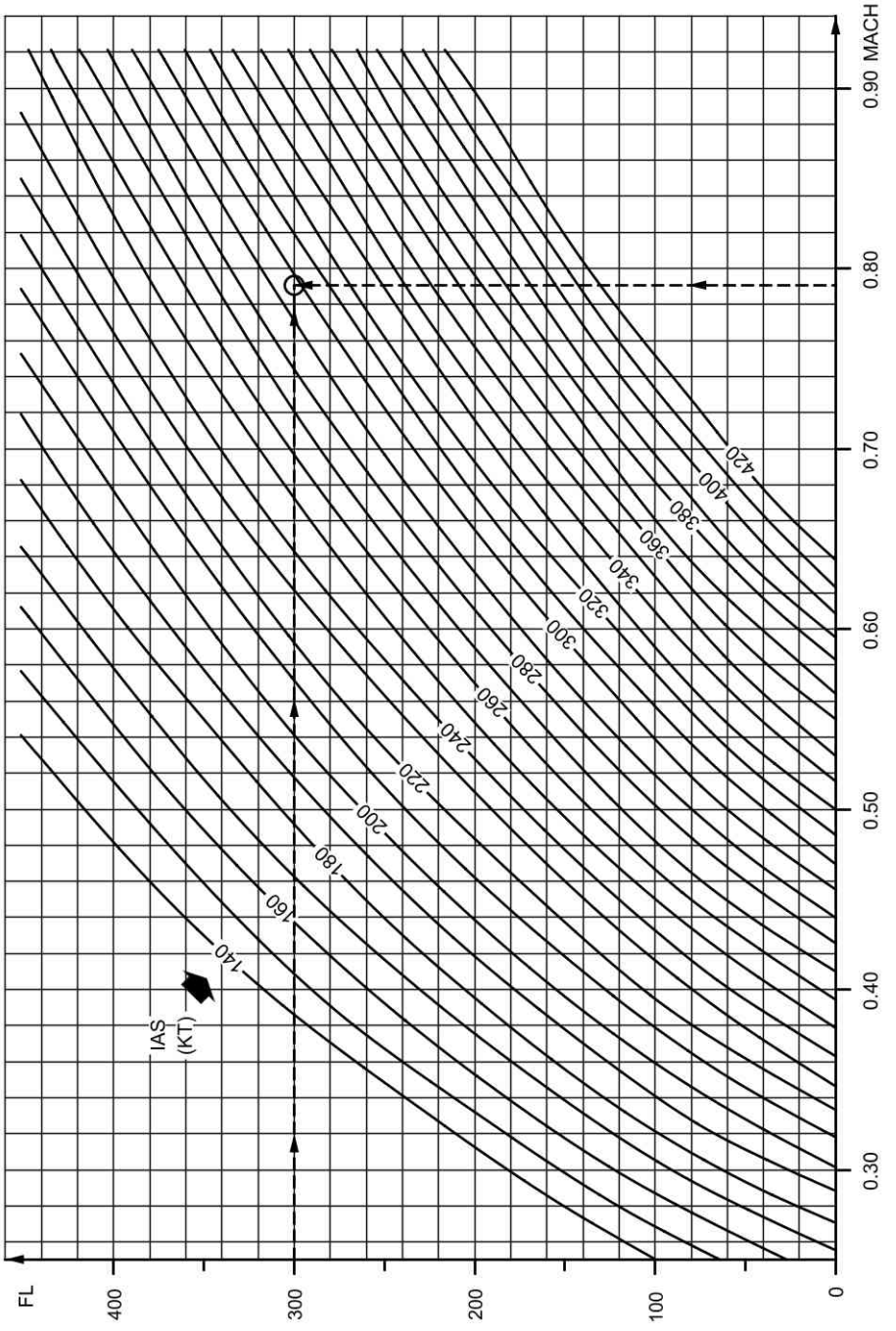
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

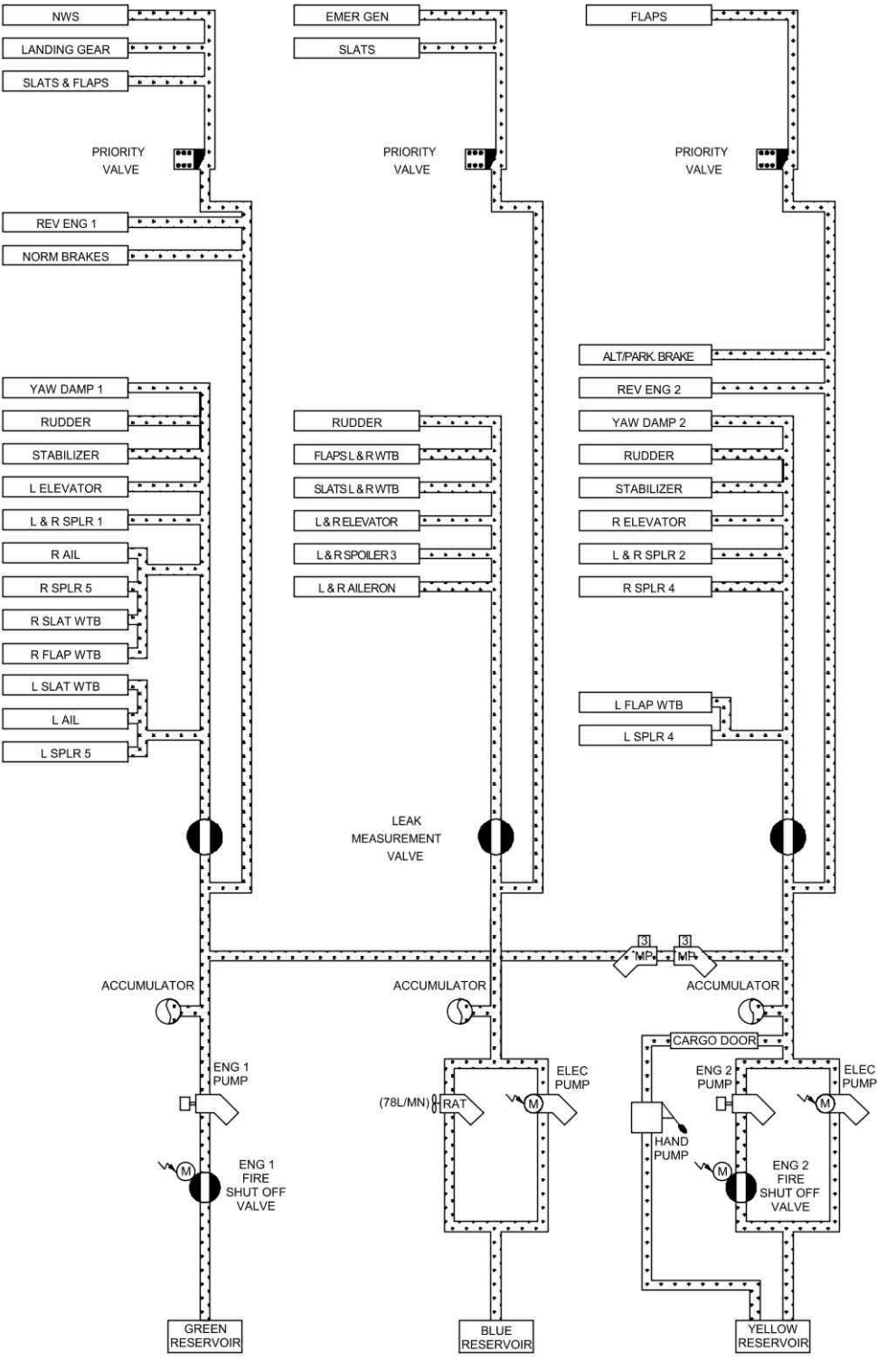
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

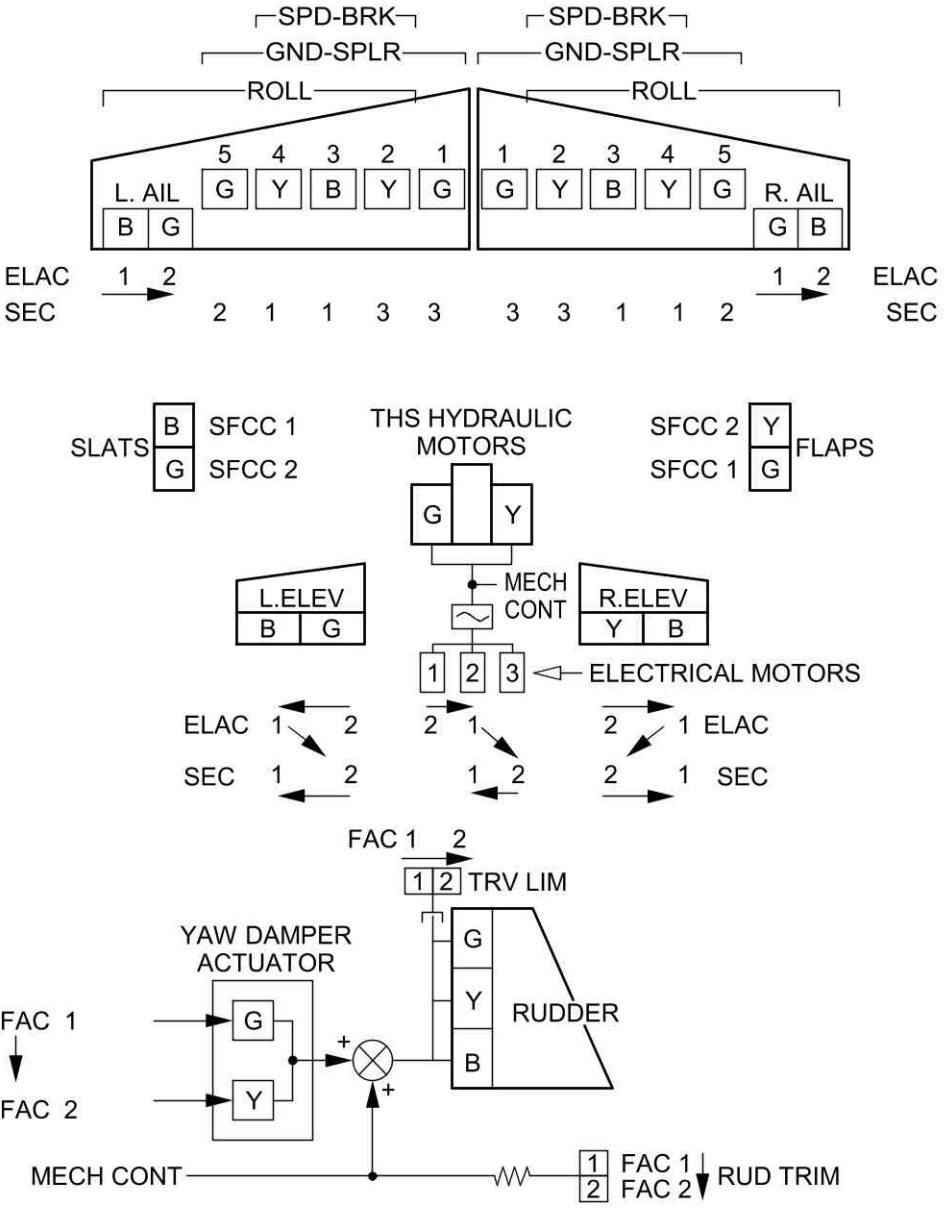
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSG**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSG**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSG**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSG**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSG**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSG**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSG**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSI

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSI**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSI**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HSI**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSI**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSI**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSI**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSI**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSI** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	0930	HDA 0055	B-HSI	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P5769		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF NEW RAIN REPELLENT
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	32-1361 00		30 MAY 12	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU L4.9B (EM2) FROM STD BSCU STD 10 OR 10.1 (PRE EM2).
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	27-1188 00		30 MAY 12	FLIGHT CONTROL -ELAC SYSTEM- INTRODUCE ELAC A L84 SOFTWARE STANDARD - SB ONLY.
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02
FLT ON BAT ONLY..... 24.03

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

LOSS OF BRAKING 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
EGPWS ALERTS 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
TCAS WARNINGS 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[7] ENG DUAL FAILURE - FUEL REMAINING 70.01
[8] ENG DUAL FAILURE - NO FUEL REMAINING 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[9] **ABN-80 Miscellaneous**

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
Ditching 80.03
Forced Landing 80.04
EMER Descent 80.05
OVERWEIGHT LANDING..... 80.06
Stall Recovery 80.07
Stall Warning at Lift-Off 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR [redacted].....80.10
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit

Localization Title	Page	ID	Reason
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1

MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2

CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING.....USE FLAP 3

- **AT 1000 FT AGL:**
  L/G..... DOWN
- **When L/G down:** BATTERIES ONLY, USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**
  EMER ELEC PWR.....MAN ON
  ALTN LAW : PROT LOST

FLT ON BAT ONLY

Flight time on batteries only may be increased to at least 30 min as follows:

ENG MODE SEL..... NORM
ANTI ICE PITOT 1 C/B (D02)..... PULL
26 V ADIRU 1 C/B (F07).....PULL

CM 1 altitude, speed, and vertical speed indication on PFD are lost. Use standby instruments

- **7 min before landing:**

  ANTI ICE PITOT 1 C/B (D02)..... RESET

  - **After 1 min:**

CAUTION	This time delay is necessary to ensure reliable speed information even in icing conditions when the ADIRU is reset to ON.

    26 V ADIRU 1 C/B (F07).....RESET

Intentionally left blank

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    BUS TIE.....OFF
    GEN 2.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      GEN 2.....ON
      BUS TIE.....AUTO

    - **If faulty equipment not confirmed isolated, before L/G extension:**

      GEN 2.....ON

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**

  ELEC EMER CONFIG..... CONSIDER

- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**

  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF

EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**

  APU GEN.....OFF

  GEN 2.....OFF

ELEC EMER CONFIG

APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**

  GEN 2.....ON

  EMER ELEC GEN 1 LINE.....ON

- **WHEN A/C IS STOPPED:**

  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Slats \ Flaps</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF

Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**

  CG location (if possible).....AFT

  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**

  FUEL IMBALANCE.....CONSIDER

  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE

- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**

  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**

  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE..... DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING..... MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL..... MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown)..... NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton..... PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION..... INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS ◁
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

- **If "H" is written on the "5" key:**

  H KEY..... PRESS
  Degree marker, 0 decimal point, ENT and CLR lights come on.
  A/C HEADING..... ENTER

- **If "H" is not written on the "5" key:**

  A/C HEADING..... ENTER
  Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
  Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
  Heading will be displayed on the associated ND.
  "HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.
  CREW OXY MASKS (Above FL 100).....ON
- **WHEN APU AVAIL FL < 200:**
  WING ANTI ICE..... OFF
  APU BLEED..... ON
  ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ⩤ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⩤ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**
  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO..... SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached:**

ENG MODE SEL..... NORM
TCAS MODE SEL ◁✻ .....check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

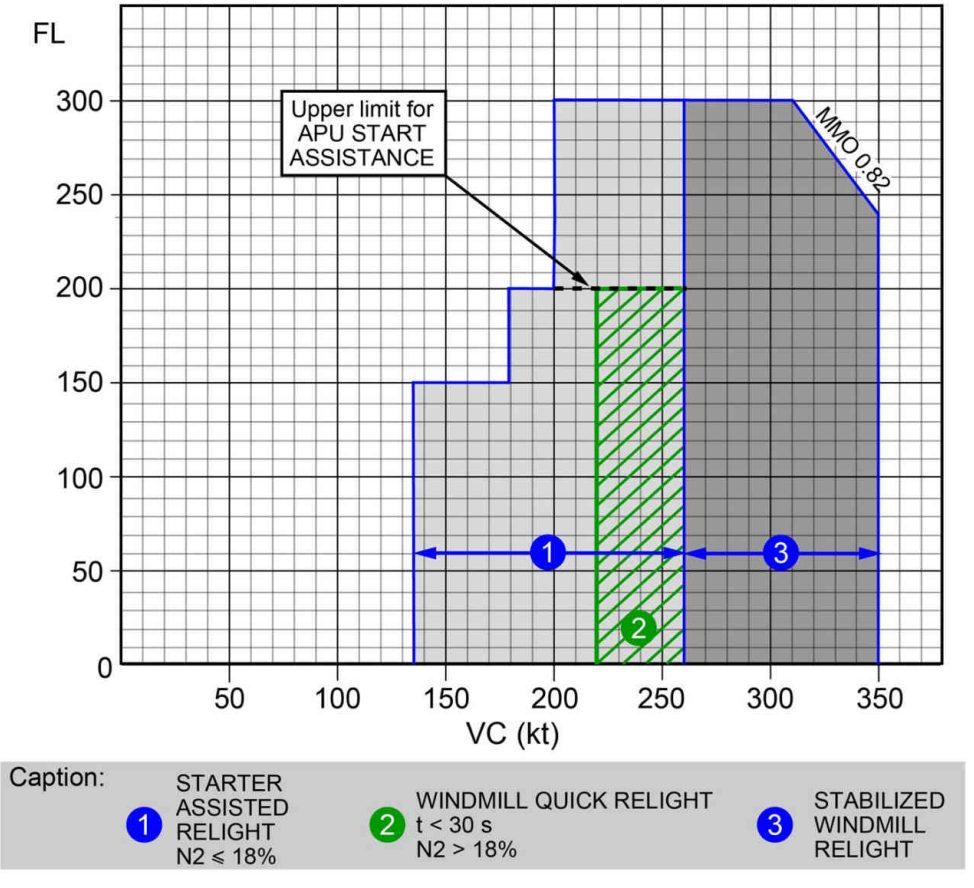
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight:**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**
ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**
ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**
THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**
Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note:
1. *High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*
2. *High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.*

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

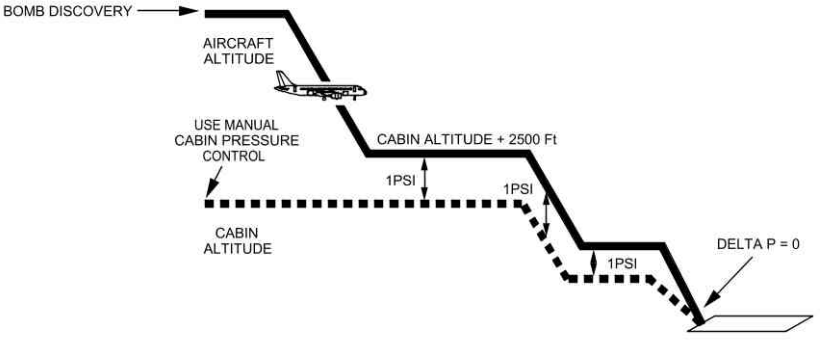
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

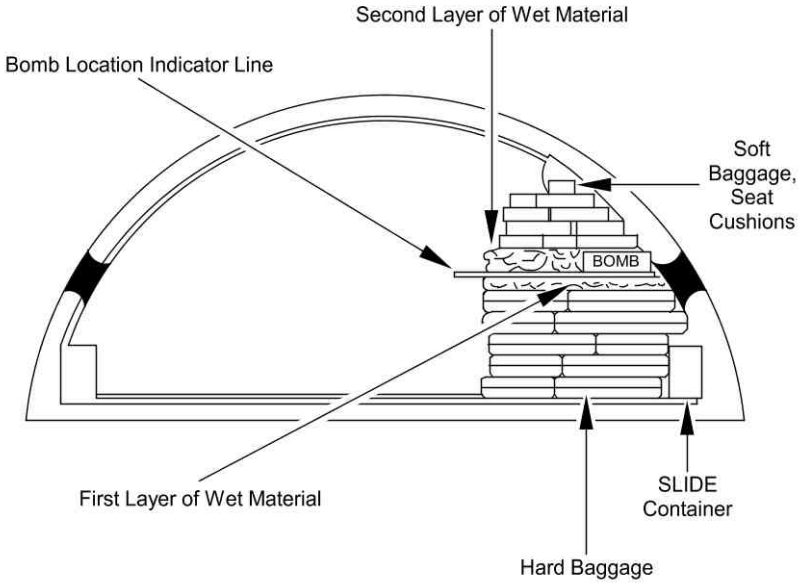
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SELECT 00
BARO.....SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SET
BARO.....SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: *For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.*

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ At takeoff

■ If before V1

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ If after V1

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

■ Airborne, initial climb or landing

THR LEVERS AT TOGA.....SET OR CONFIRM
AP (if engaged).....KEEP
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL..... 230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL..... MAN
MAN V/S CTL..... AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL..... AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

● REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

● DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

● CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

● SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

● PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

● BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

● PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

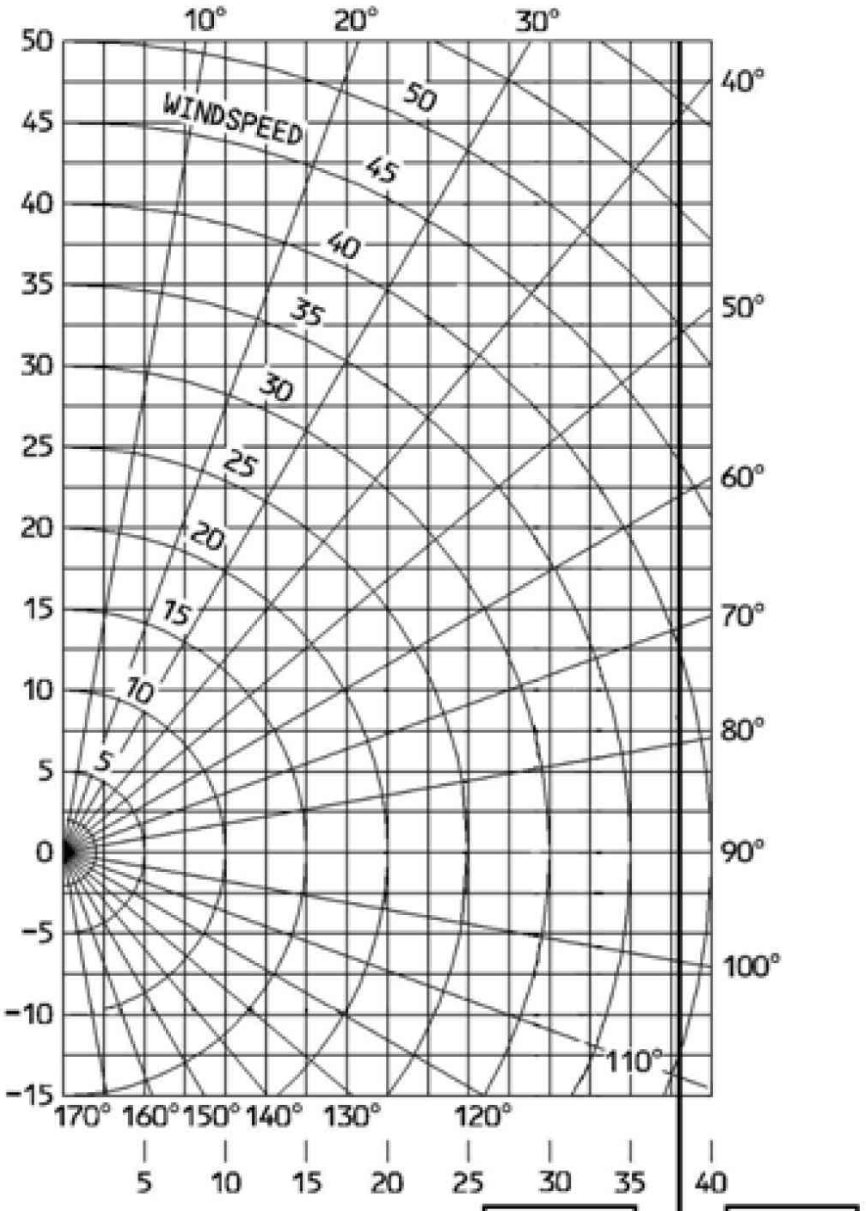
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

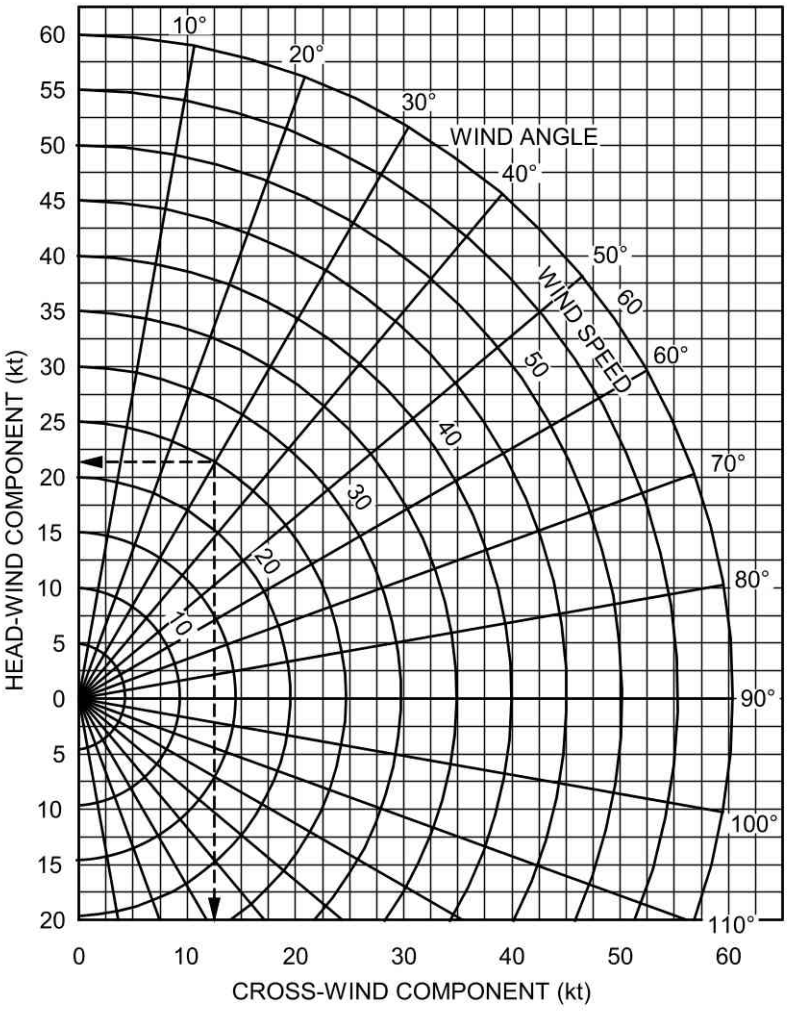
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

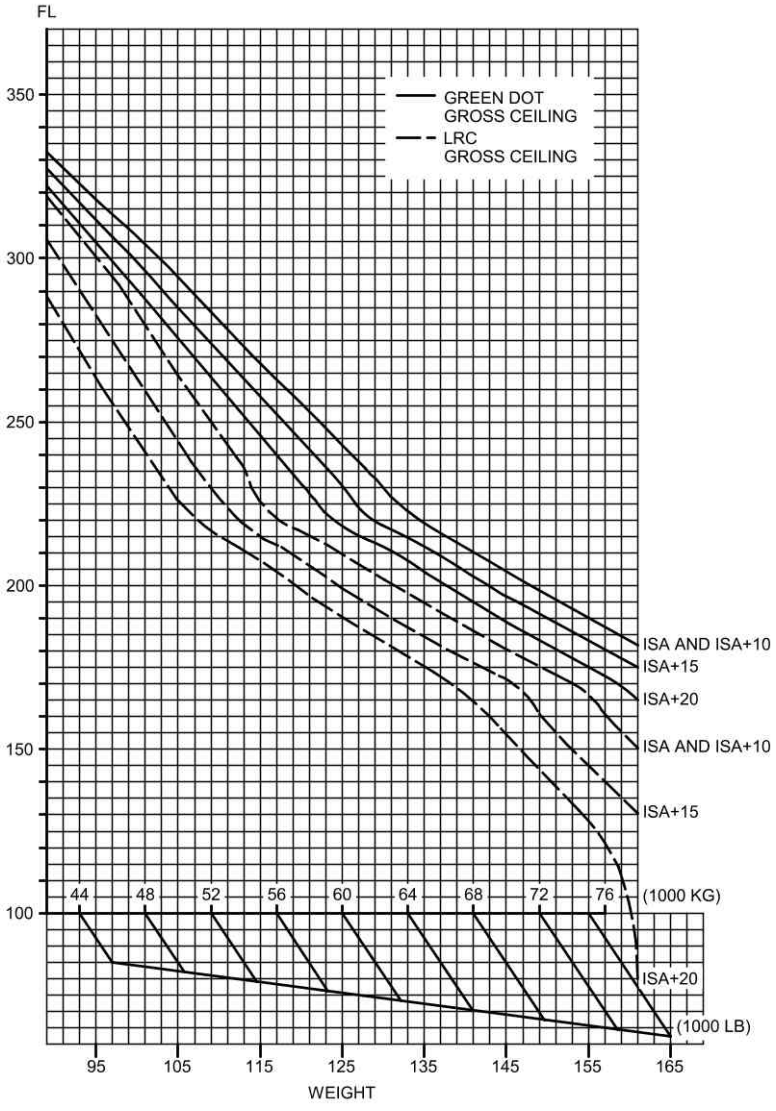
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

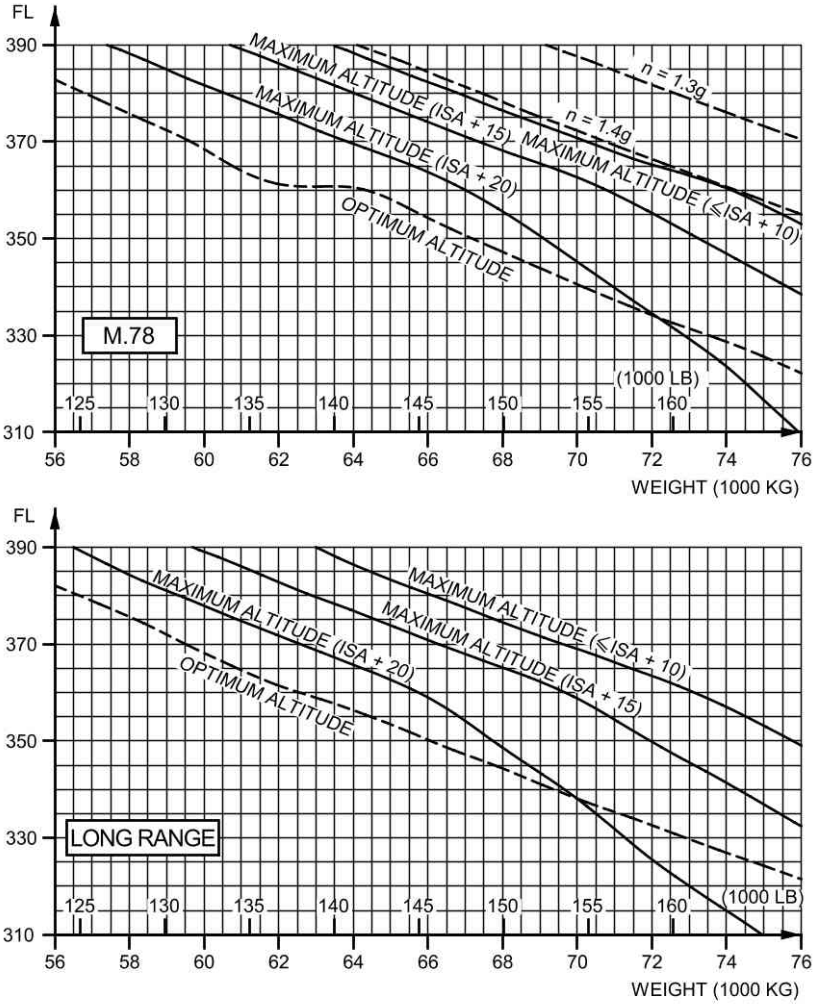
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

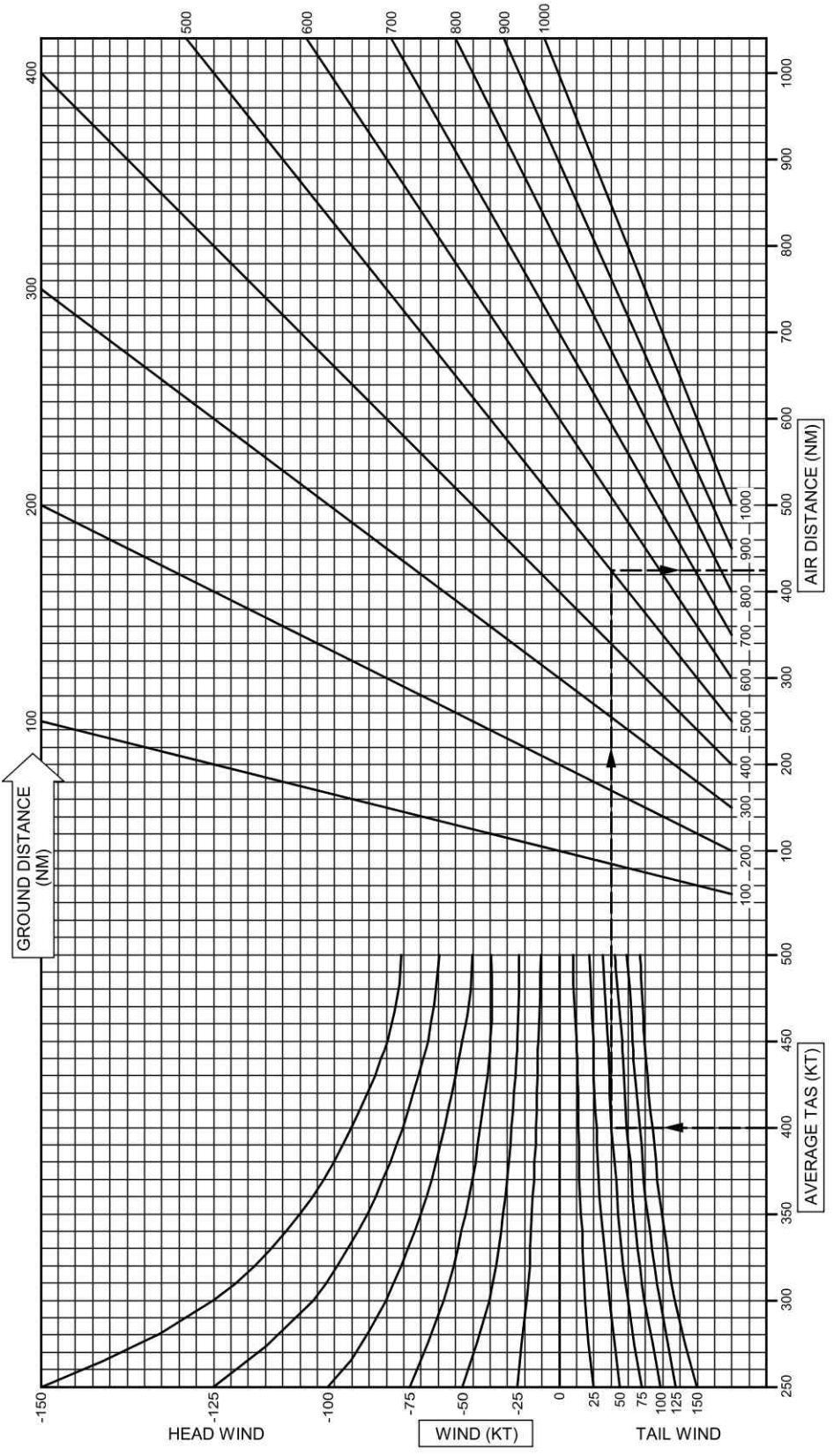
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

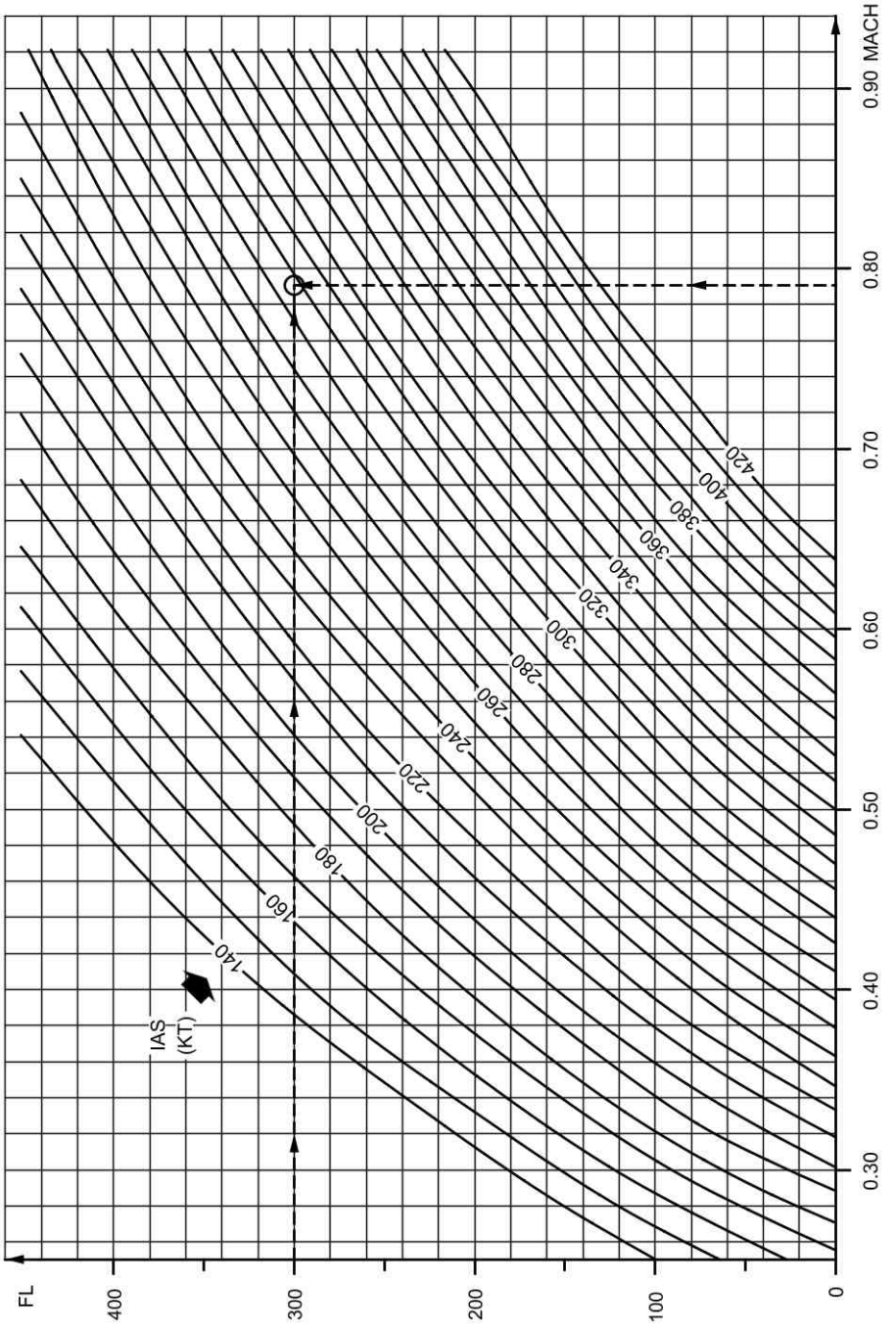
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

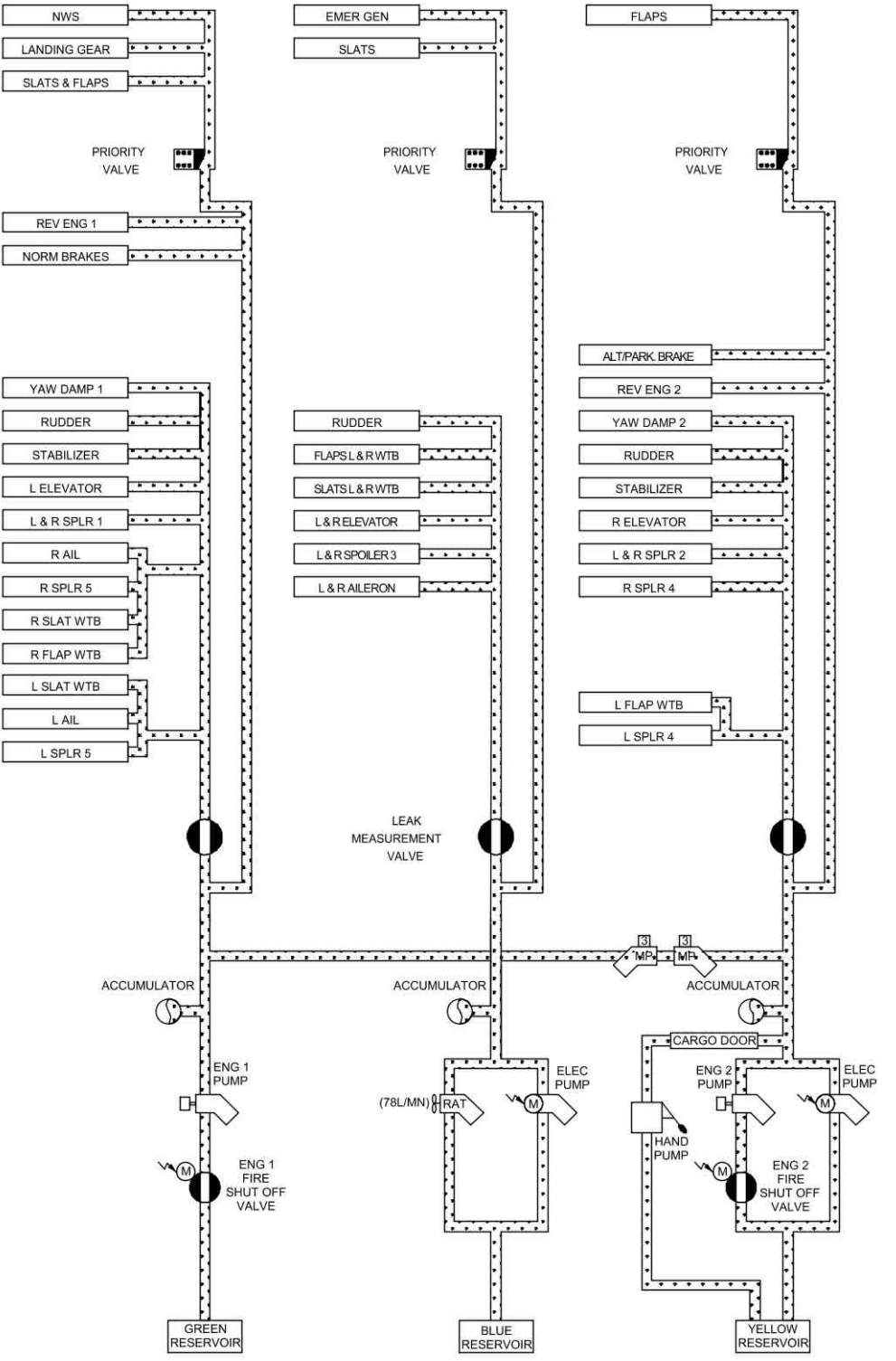
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

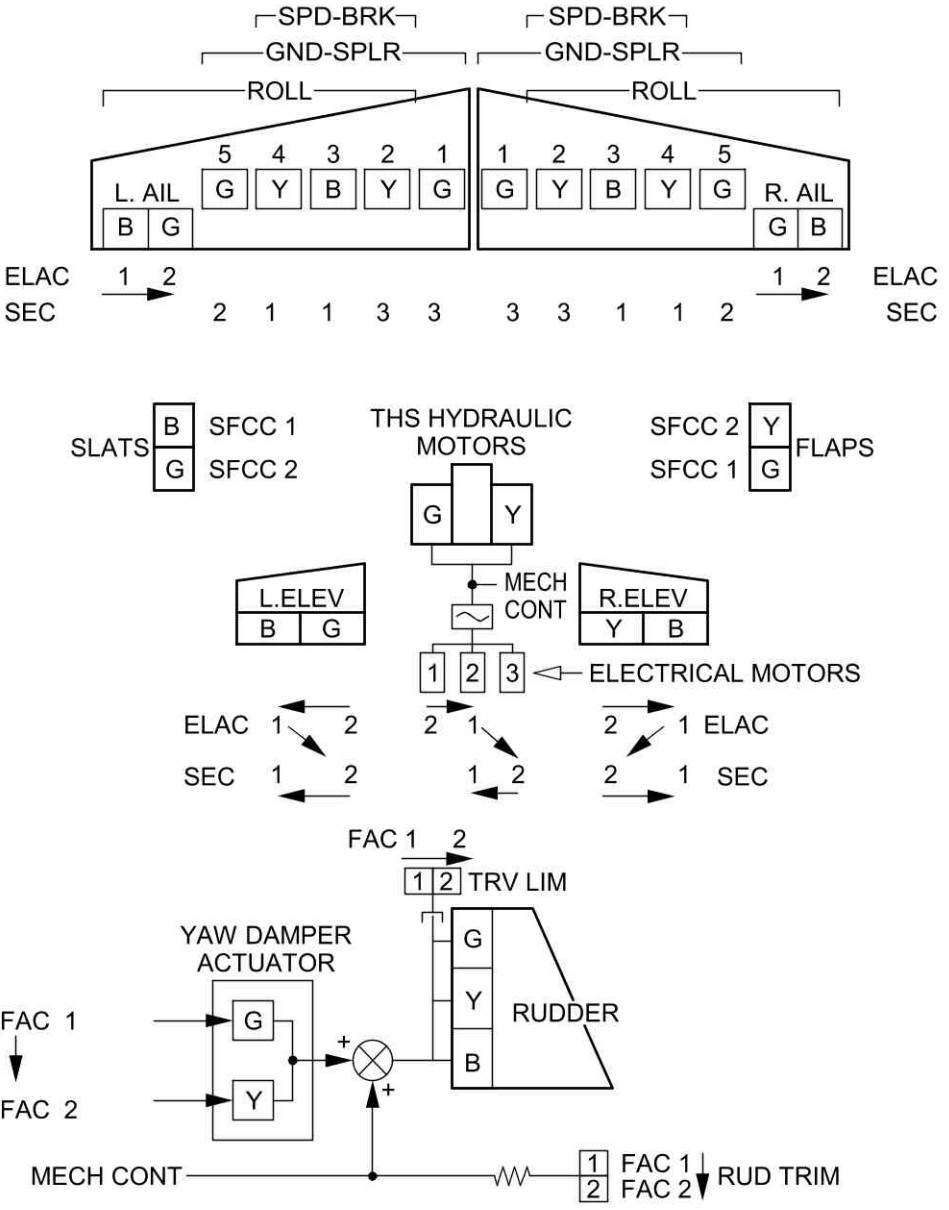
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSI**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSI**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSI**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSI**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSI**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSI**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSI**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSJ

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSJ**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSJ**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSJ**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSJ**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSJ**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSJ**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSJ**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSJ**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSJ** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	1253	HDA 0002	B-HSJ	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] ABN-22 Auto Flight

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF..... 27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK..... 28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[9] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
11 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.

Localization Title	Page	ID	Reason
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2..... OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    BUS TIE.....OFF
    GEN 2.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      GEN 2.....ON
      BUS TIE.....AUTO

    - **If faulty equipment not confirmed isolated, before L/G extension:**

      GEN 2.....ON

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**

  ELEC EMER CONFIG..... CONSIDER

- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**

  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF

EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**

  APU GEN.....OFF

  GEN 2.....OFF

ELEC EMER CONFIG

APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**

  GEN 2.....ON

  EMER ELEC GEN 1 LINE.....ON

- **WHEN A/C IS STOPPED:**

  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**
    Decrease pitch attitude and accelerate.
  - **When speed is above VLS, and vertical speed is positive:**
    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**
  Adjust the flight path or initiate a go-around.
- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**
  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.
- **“SINK RATE” “DON’T SINK”:**
  Adjust pitch attitude and thrust to silence the alert.
- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**
  Perform a go-around.
- **“GLIDE SLOPE”:**
  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALY & CAB.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ⩤ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
GALY &CAB..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ◁ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

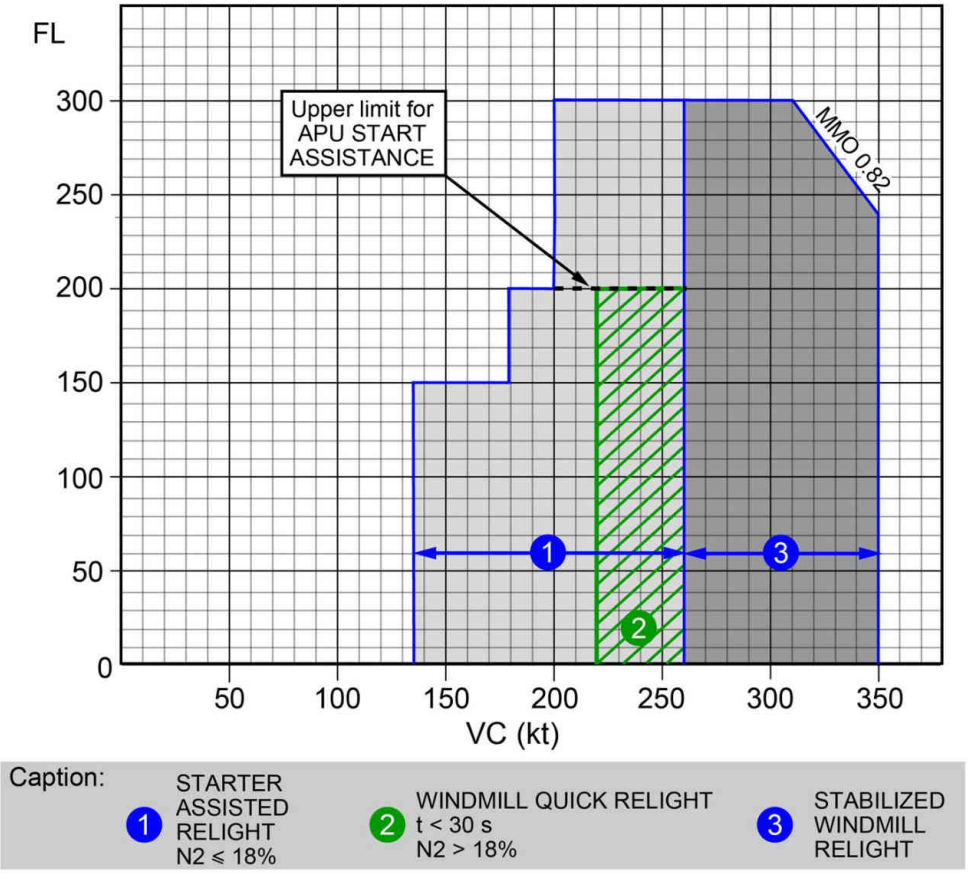
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

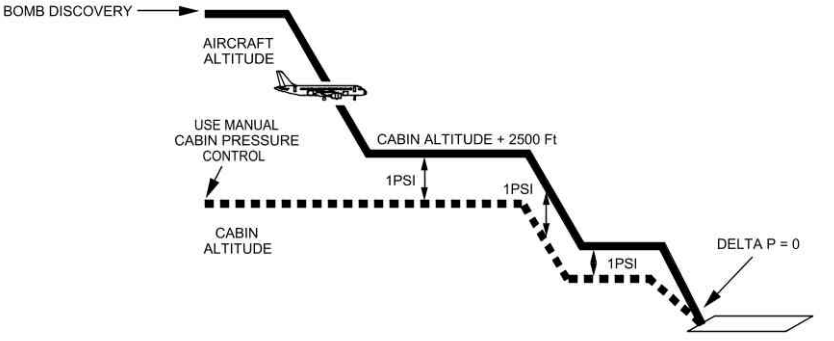
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT + 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALY & CAB.....OFF
  FLAPS (fuel permitting)..... AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.
PORTABLE ELECTRONIC DEVICES..... SWITCH OFF
The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

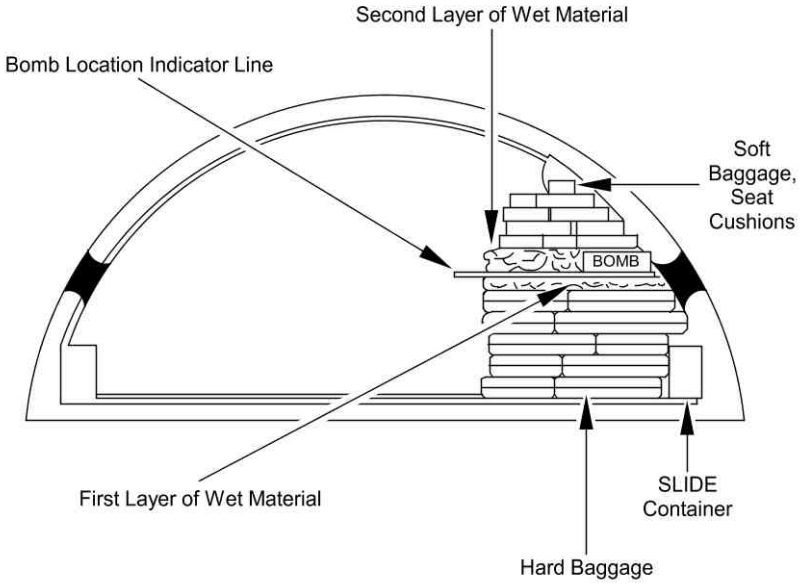
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALY & CAB.....OFF
LDG ELEV.....SELECT 00
BARO.....SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALY & CAB.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS..... MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ◁✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*

- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*

Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
  2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

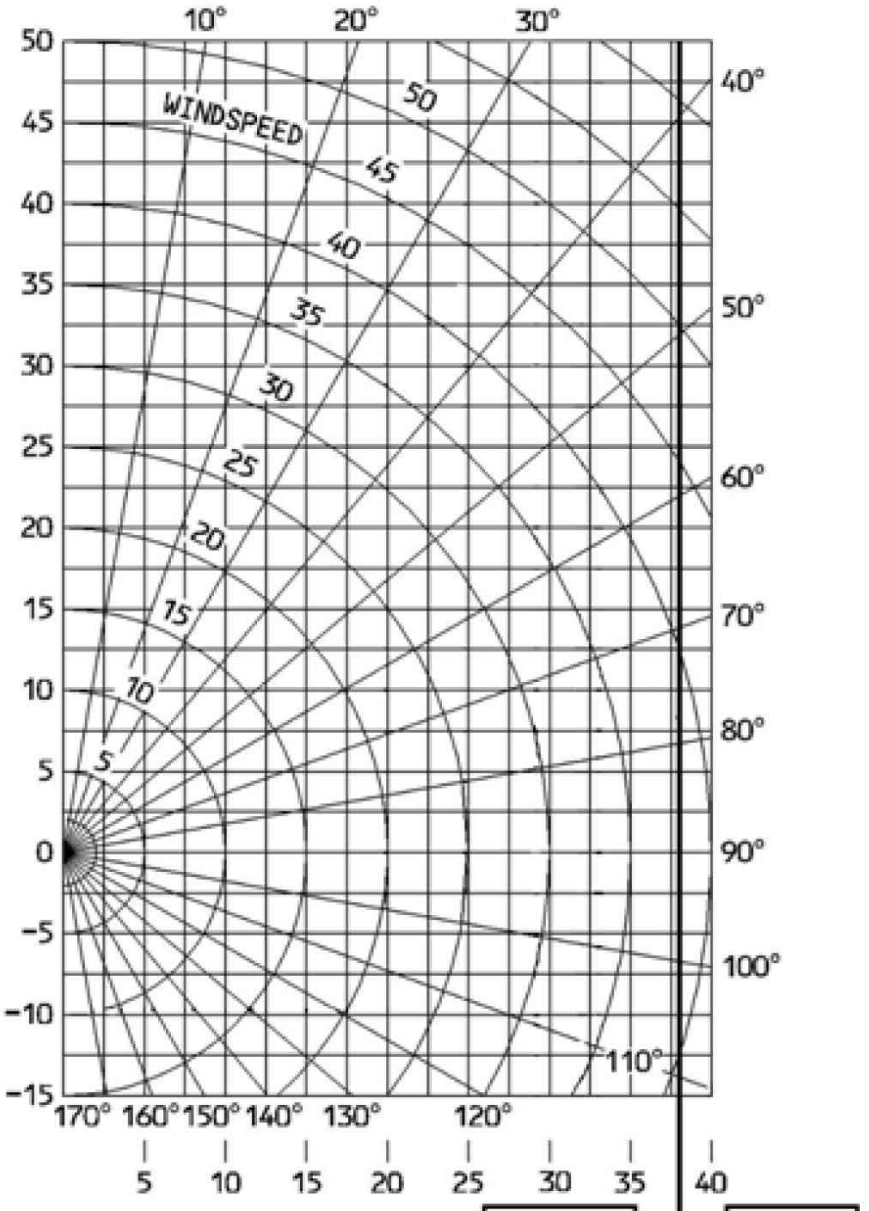
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

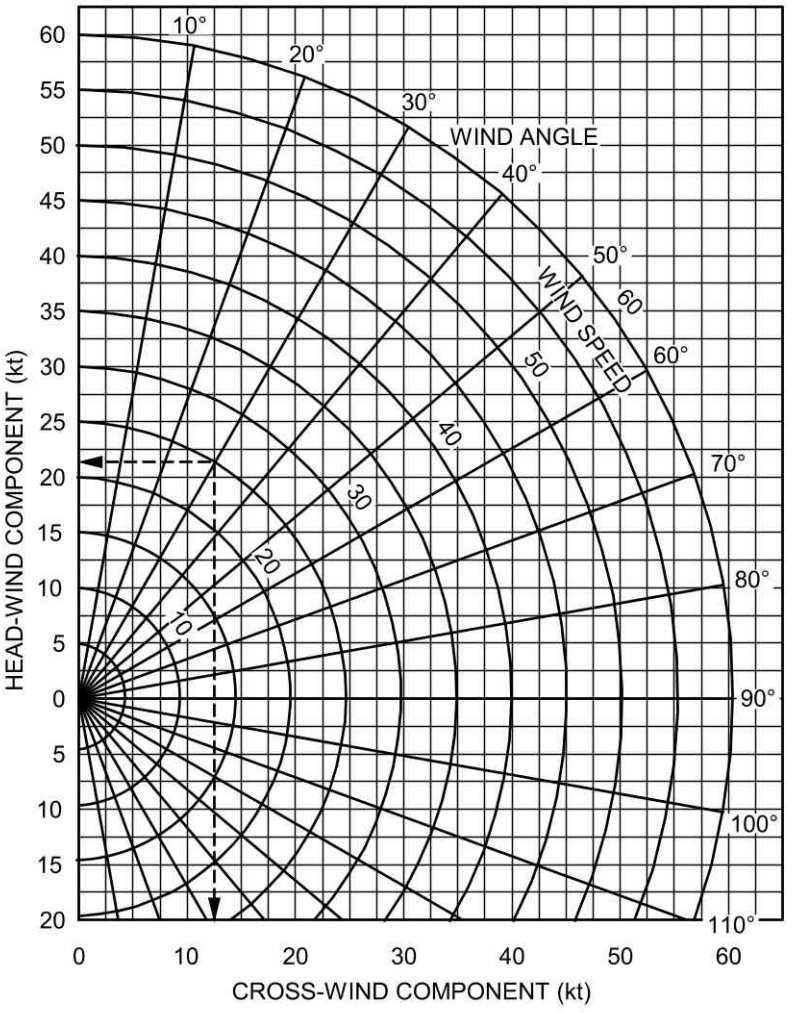
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

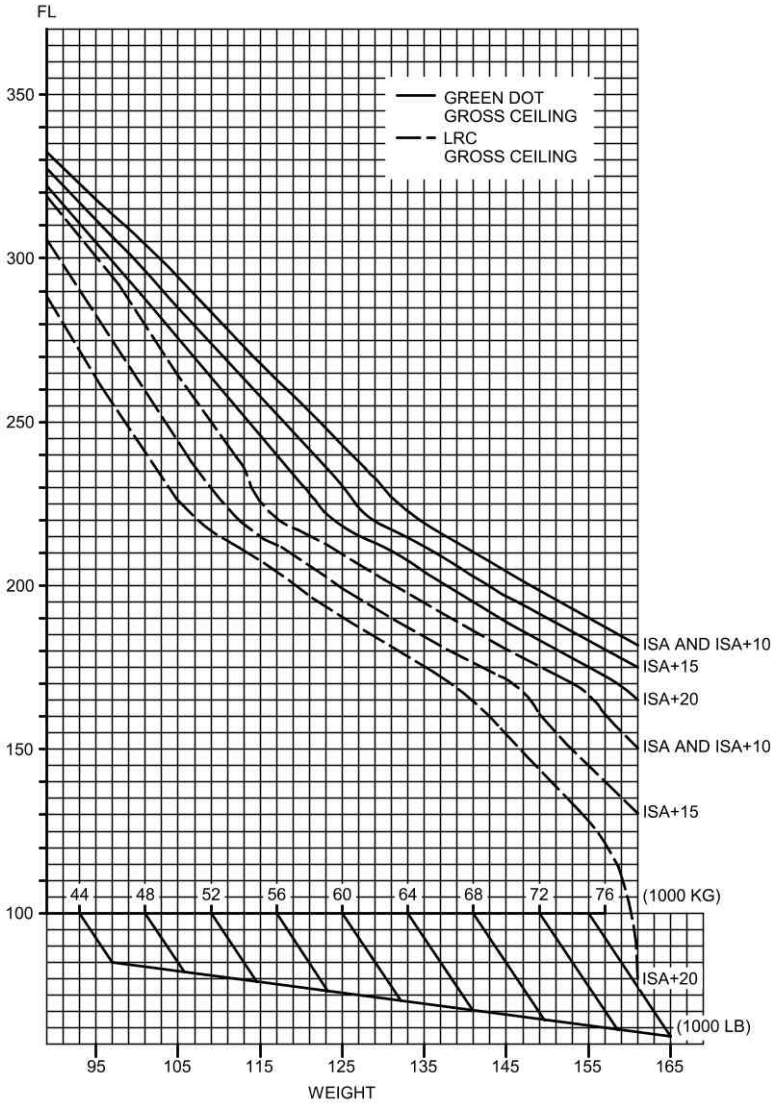
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

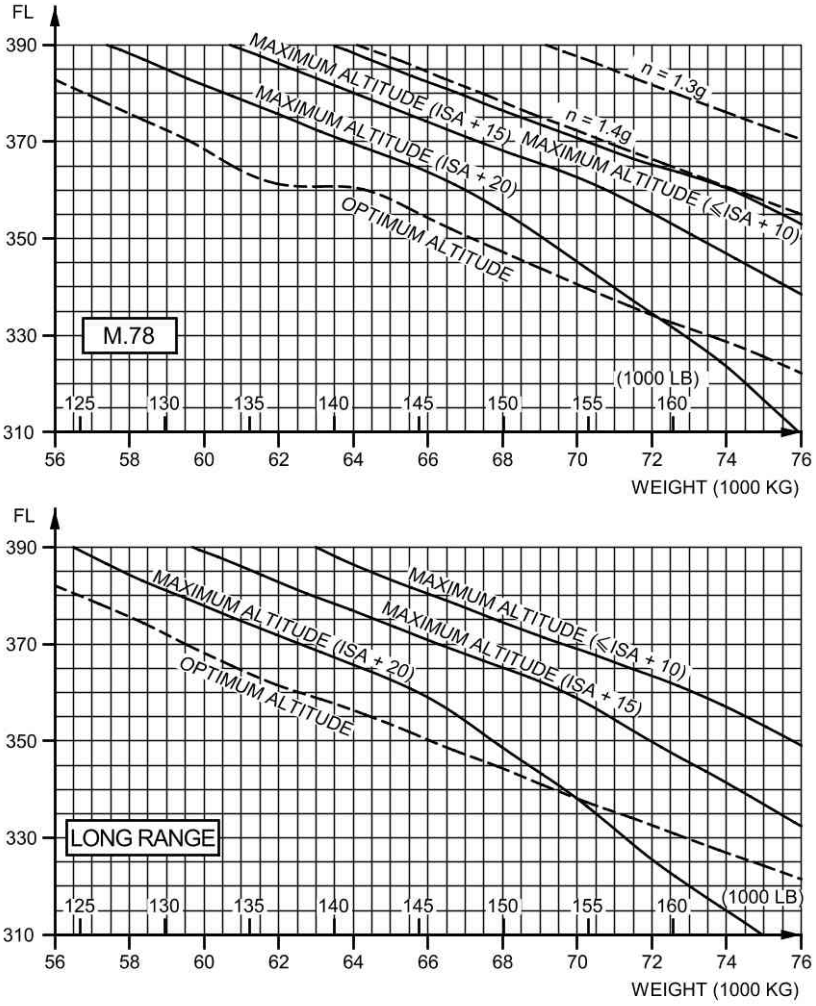
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

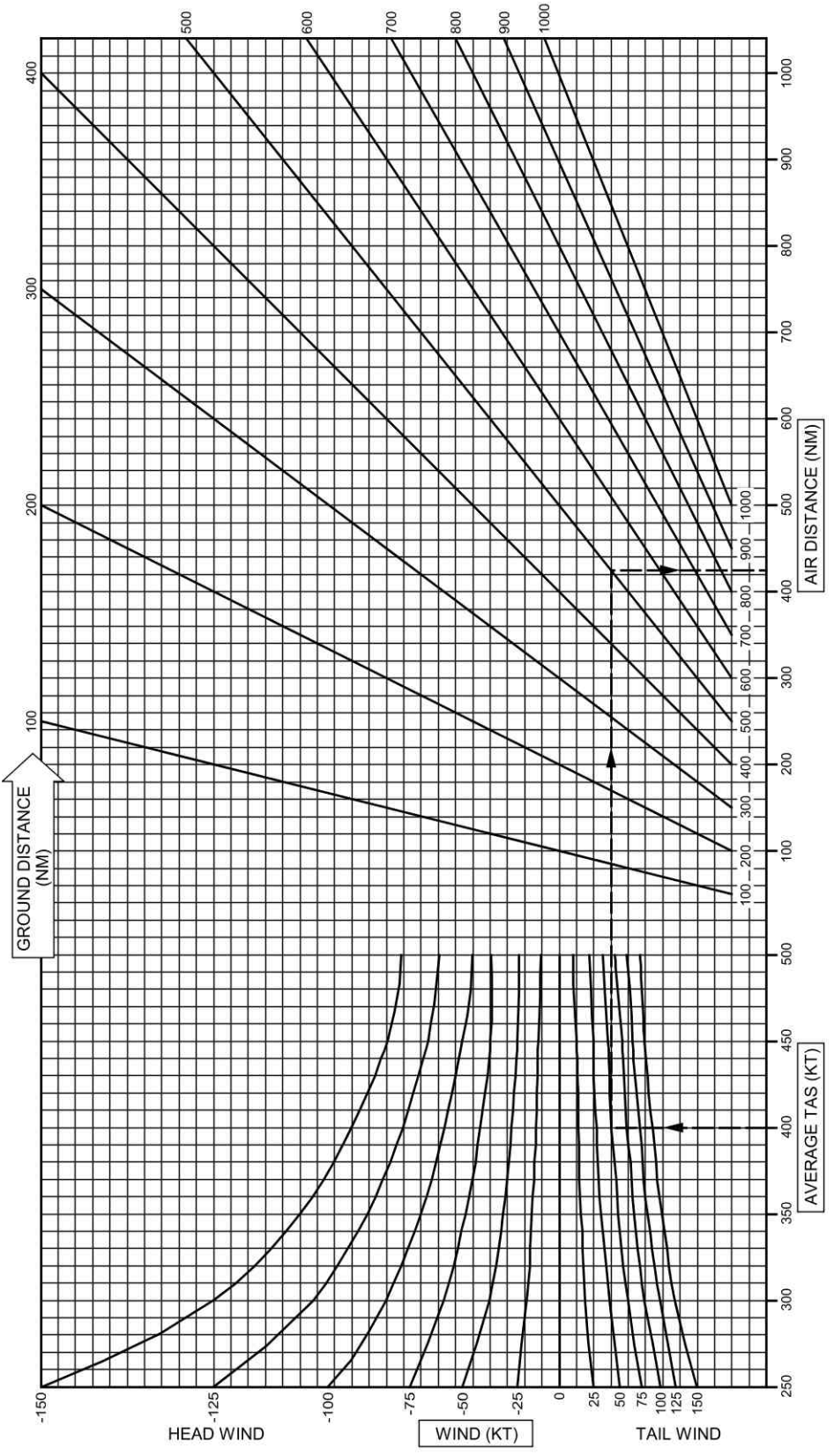
NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 25.0%	FUEL CONSUMED (KG) TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35

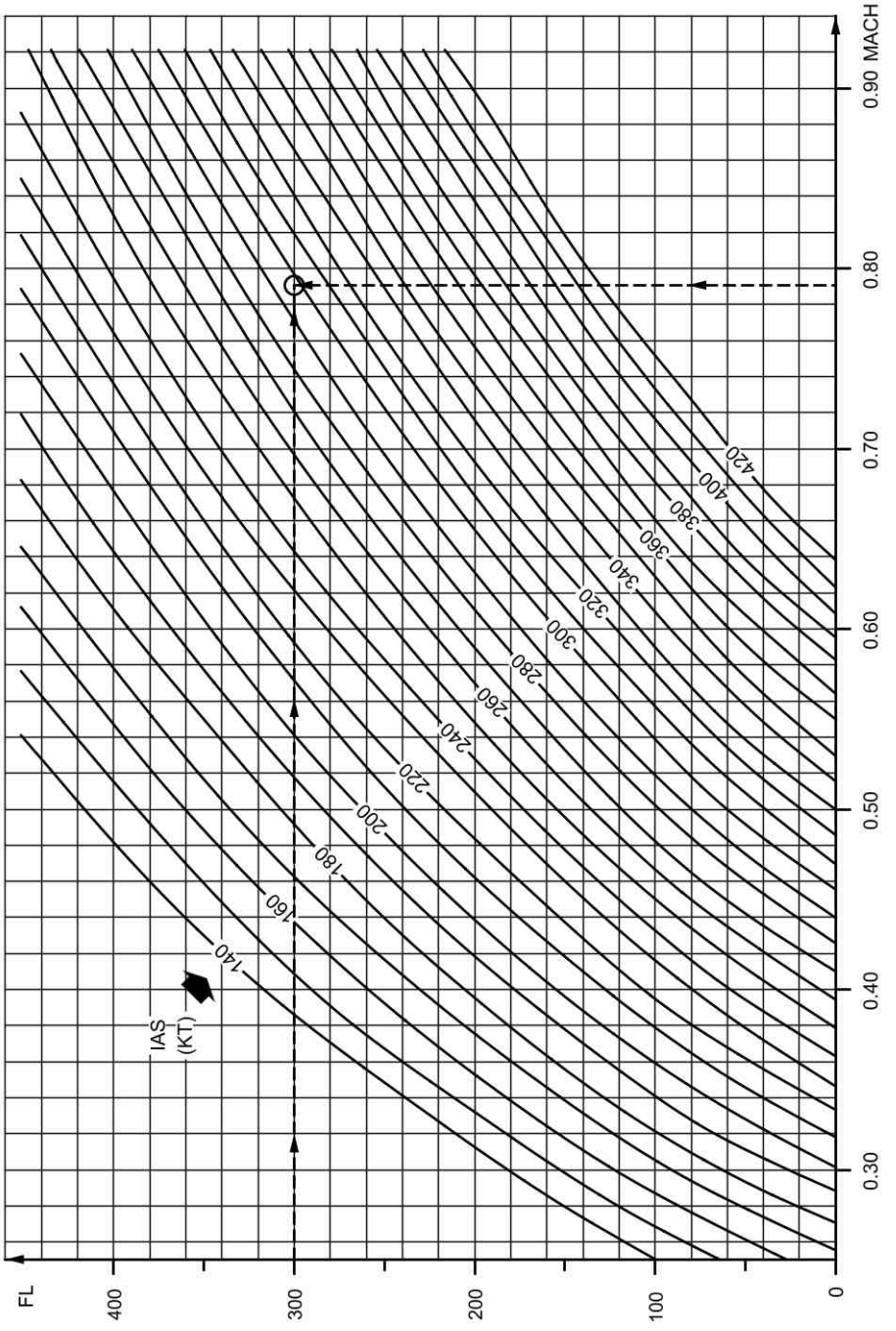
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = – 1.5 %	△FUEL = + 3 %	△FUEL = + 6 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

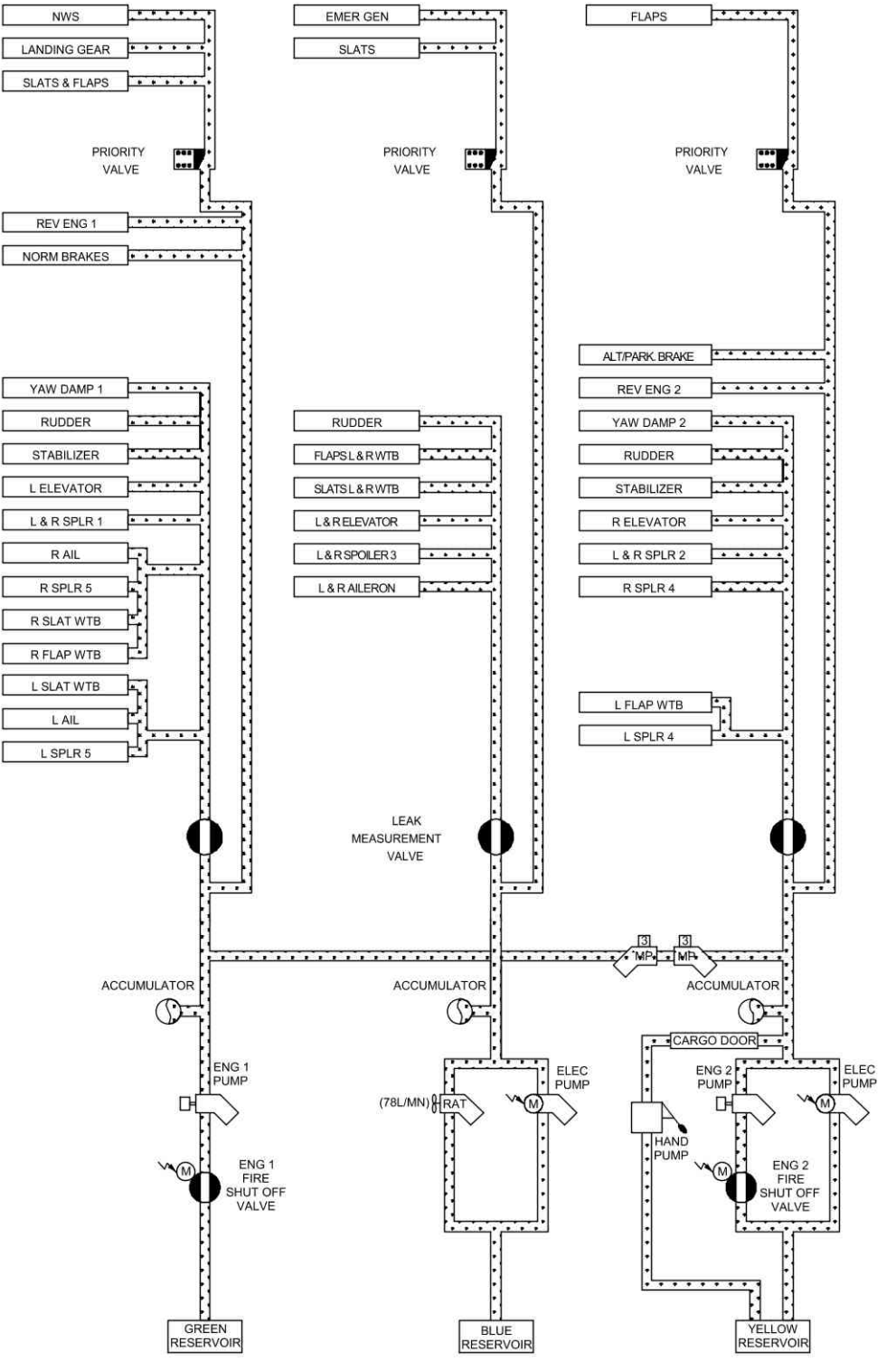
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

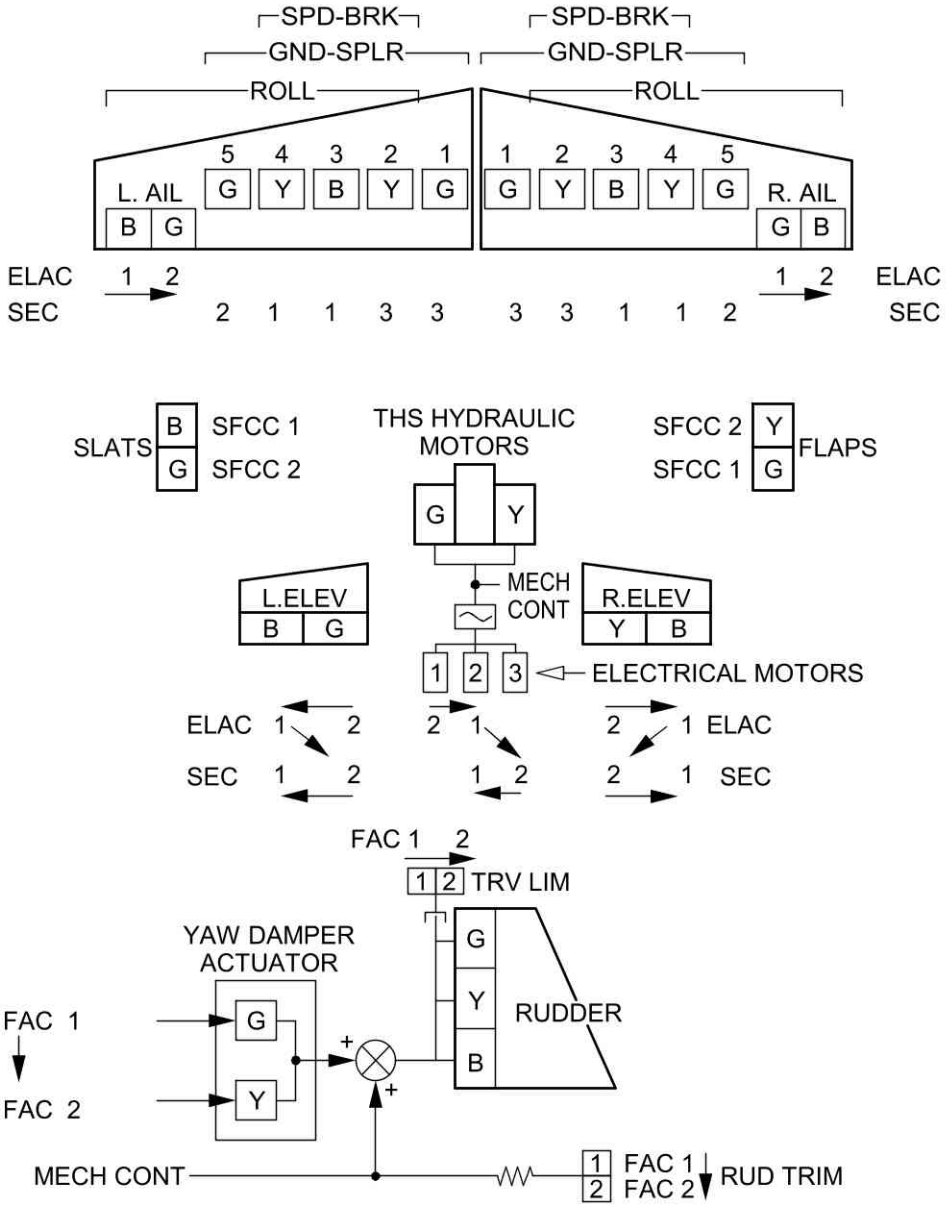
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSJ**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSJ**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSJ**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSJ**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSJ**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSJ**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSJ**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSJ**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSJ**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSJ**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSJ**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSJ**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSJ**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSJ**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSJ**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSJ**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSK

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSK**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSK**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSK**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSK**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSK**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSK**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSK**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSK**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSK** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	1721	HDA 0056	B-HSK	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K7727		30 AUG 10	EQUIPMENT/FURNISHINGS - MISCELLANEOUS EMERGENCY EQPT - INSTALL AN HONEYWELL ELT WITH CONTROL PANEL IN COCKPIT
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[9] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
11 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.

Localization Title	Page	ID	Reason
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1..... OFF

  - **If smoke continues:**

    PACK 1..... ON
    PACK 2..... OFF

    - **If smoke still continues:**

      PACK 2..... ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL..... CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL..... OFF
    SMOKE DISSIPATION..... CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL..... CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION..... RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR..... MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2..... OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2..... ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  FUEL X FEED..... USE AS RQRD
  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER..... DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10

FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE.....OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached:**

ENG MODE SEL..... NORM
TCAS MODE SEL ◁✻ .....check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

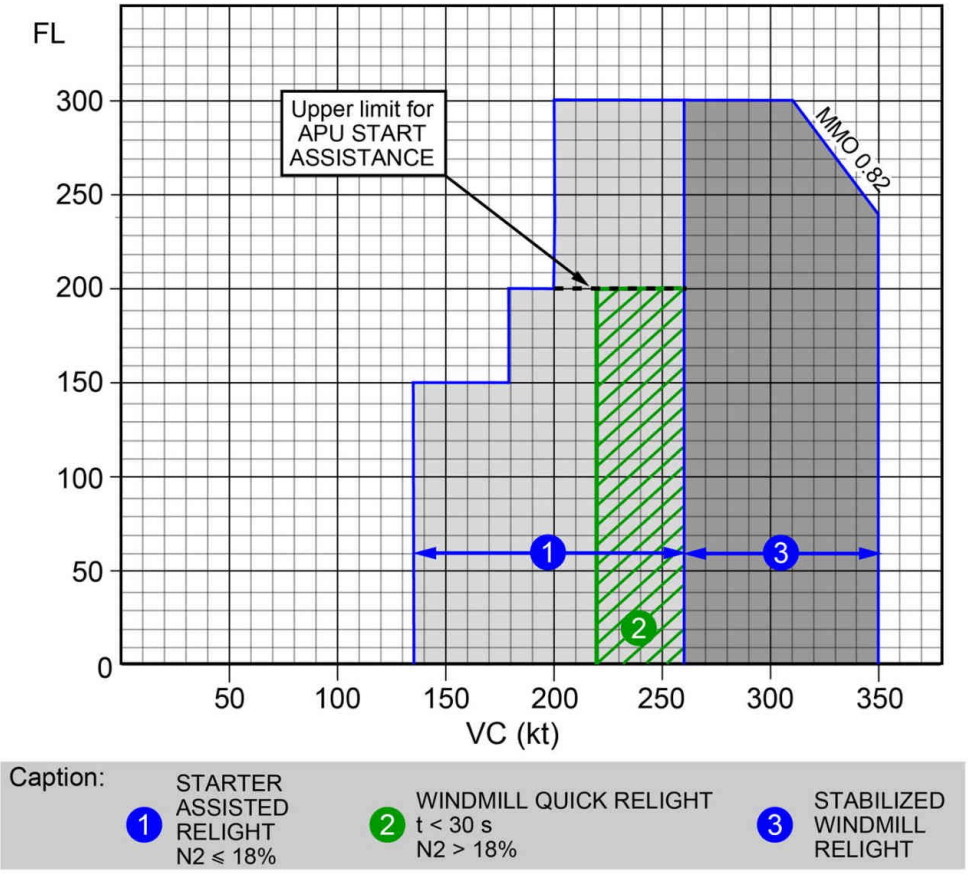
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight:**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

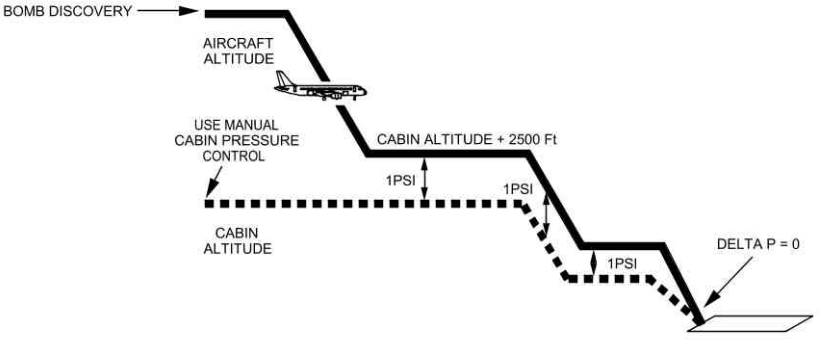
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON
    COMMERCIAL.....OFF

  FLAPS (fuel permitting).....AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL.....AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

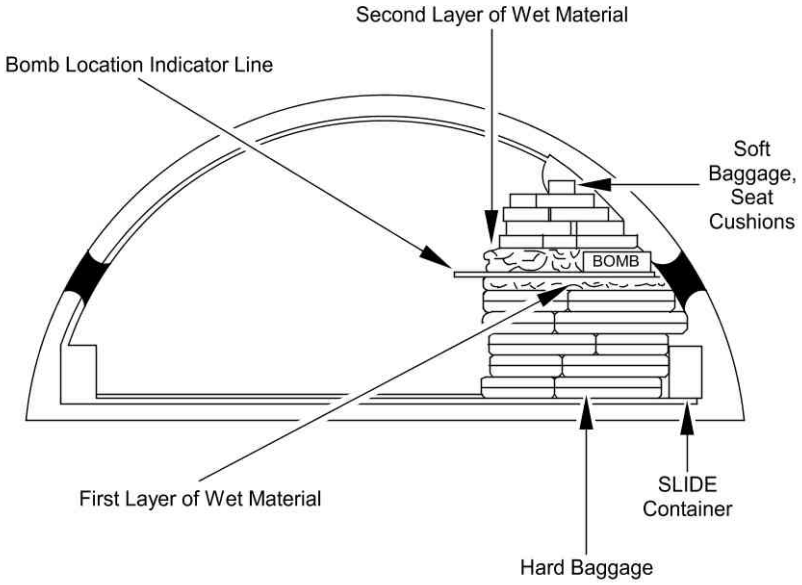
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁✻) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note: The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *If during taxi, when the aircraft is moving, WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT ECAM alert appears along with the NW STRG DISC memo, the flight crew may attempt to perform only one BSCU reset. If the mentioned alert and memo disappear after this BSCU reset, continue the flight.* *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

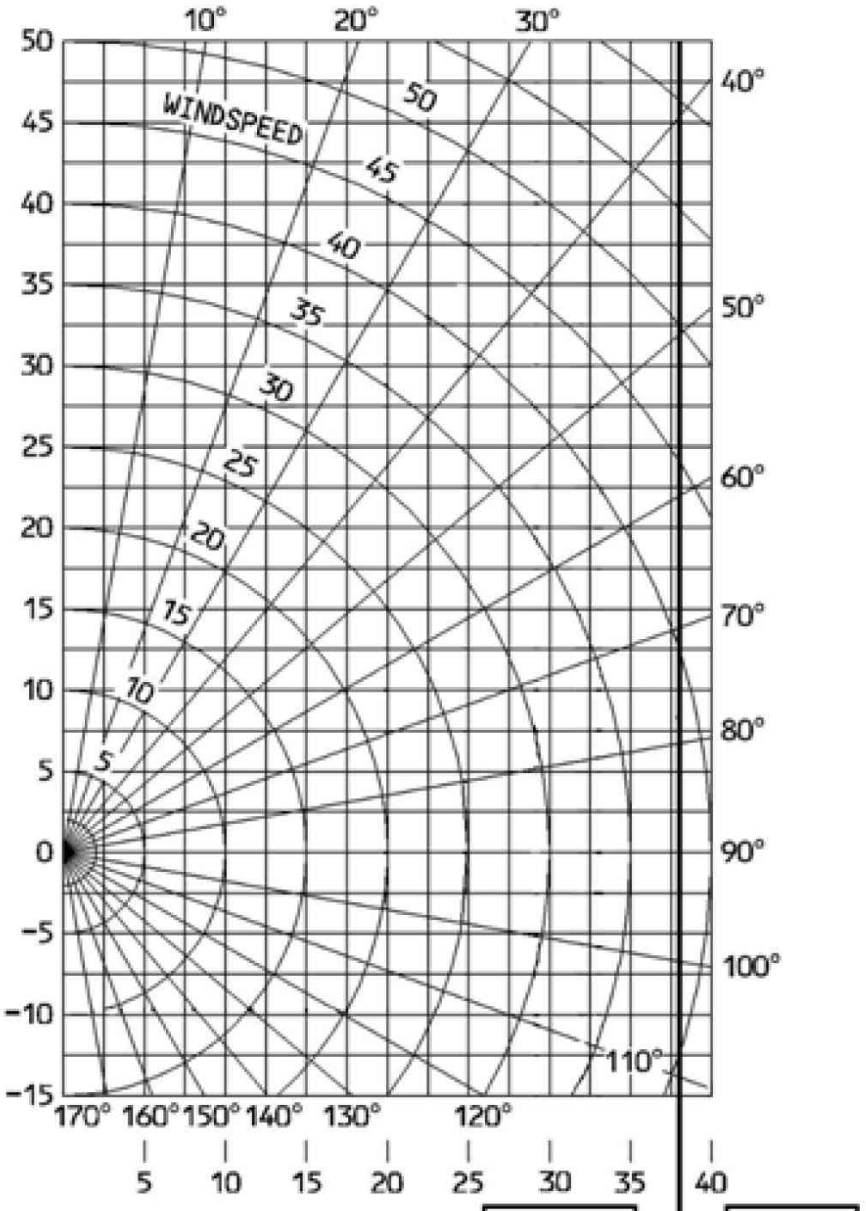
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings.....1/4
Gross Flight Path Descent at Green Dot Speed..... 2/4
Cruise at Long Range Cruise Speed..... 3/4
In Cruise Quick Check Long Range.....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes..... 1/4
In Cruise Quick Check at a Given Mach Number.....2/4
Cost Index for Long Range Cruise Speed.....2/4
Standard Descent.....3/4
Quick Determination Table of Alternate Flight Planning.....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range..... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion..... 1/2
IAS / MACH Conversion..... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

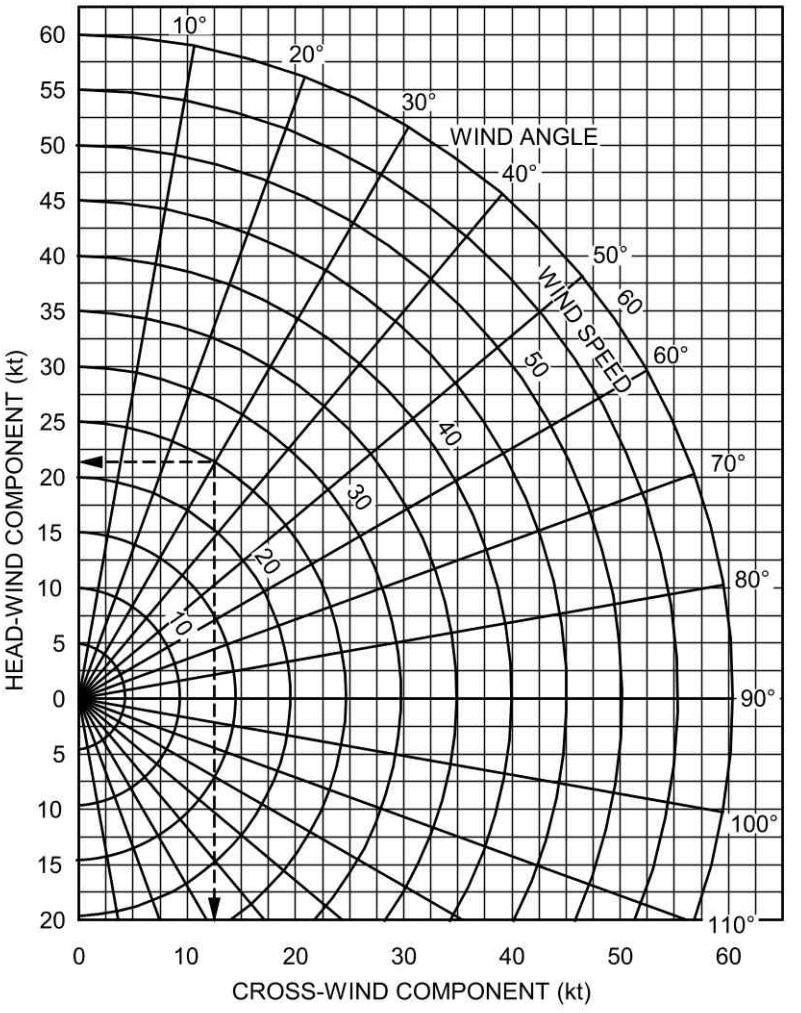
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

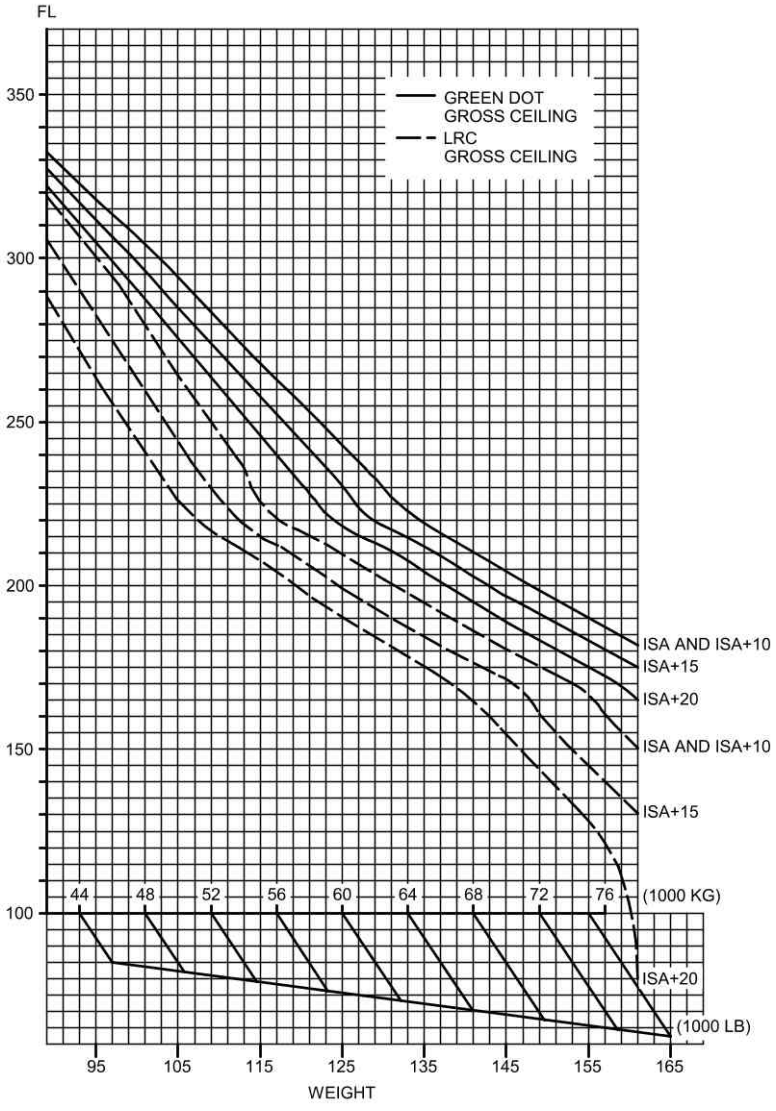
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

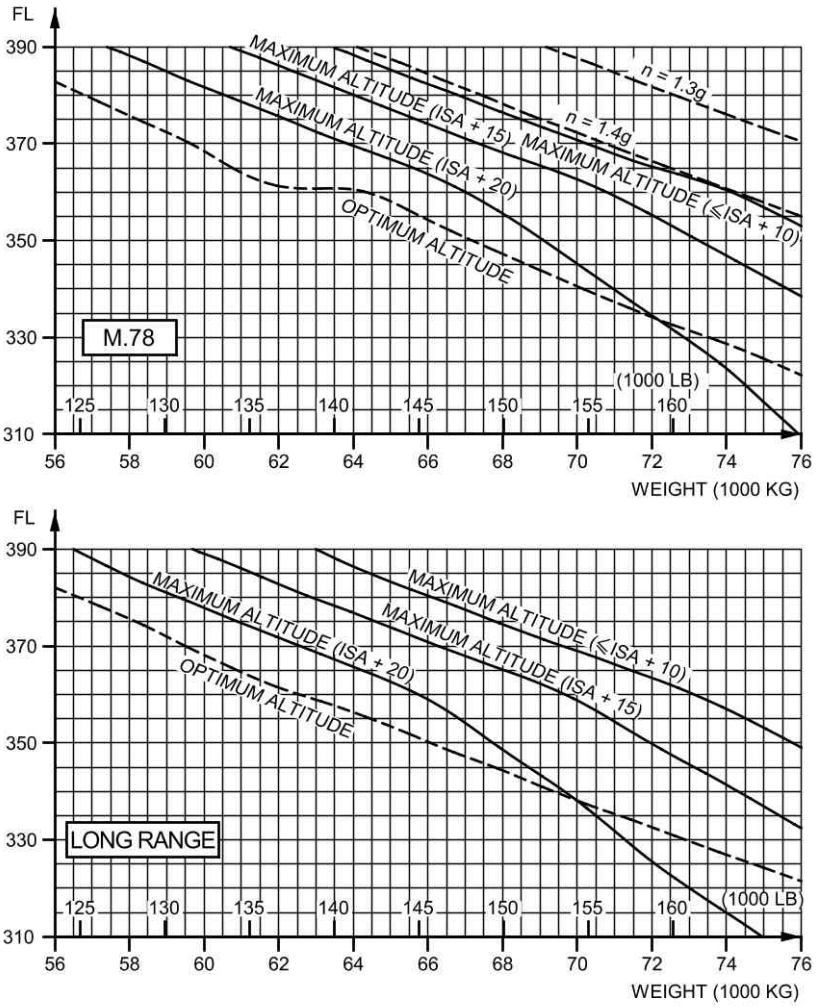
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

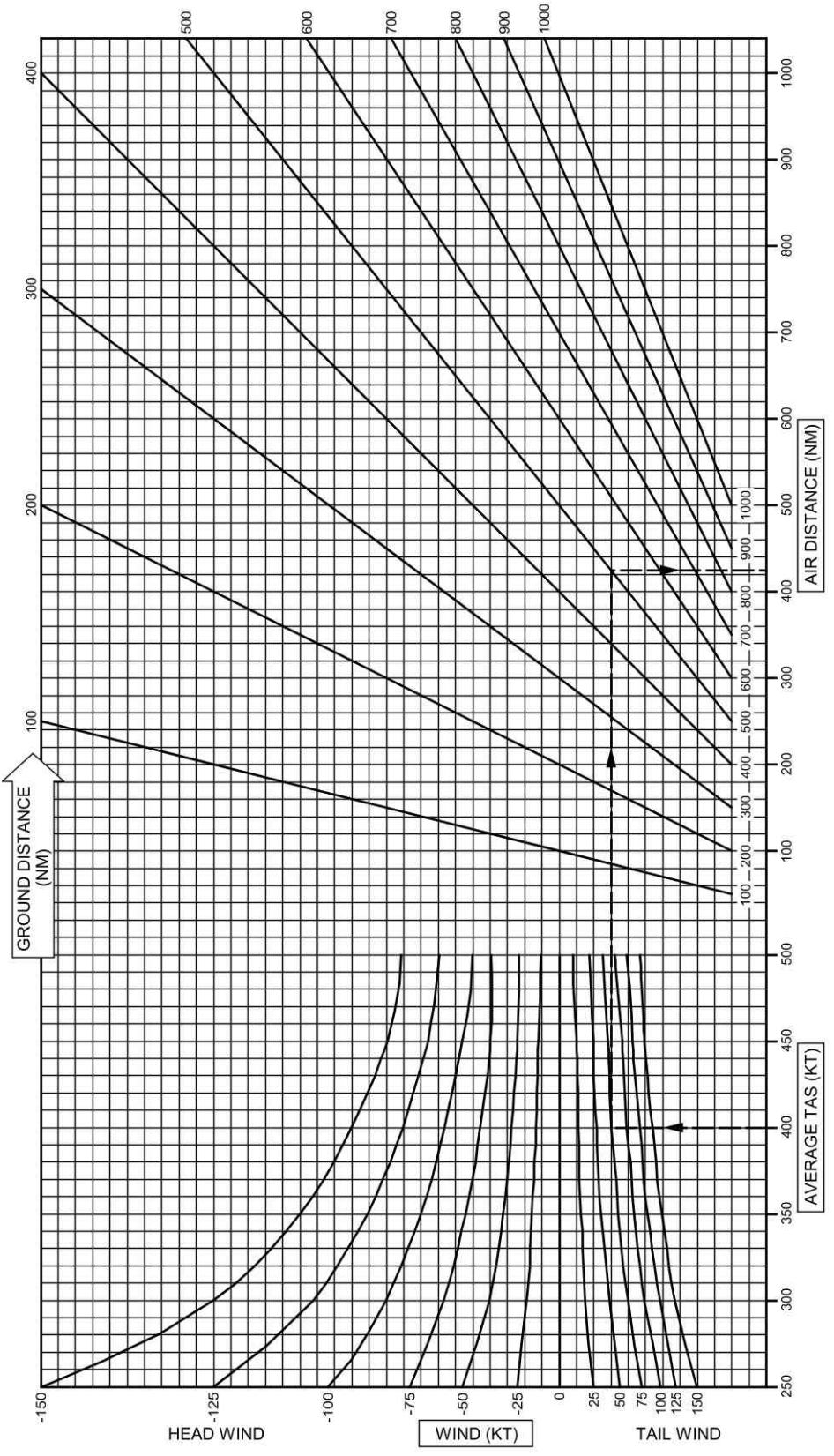
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	55	60	65	70	75	80
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35

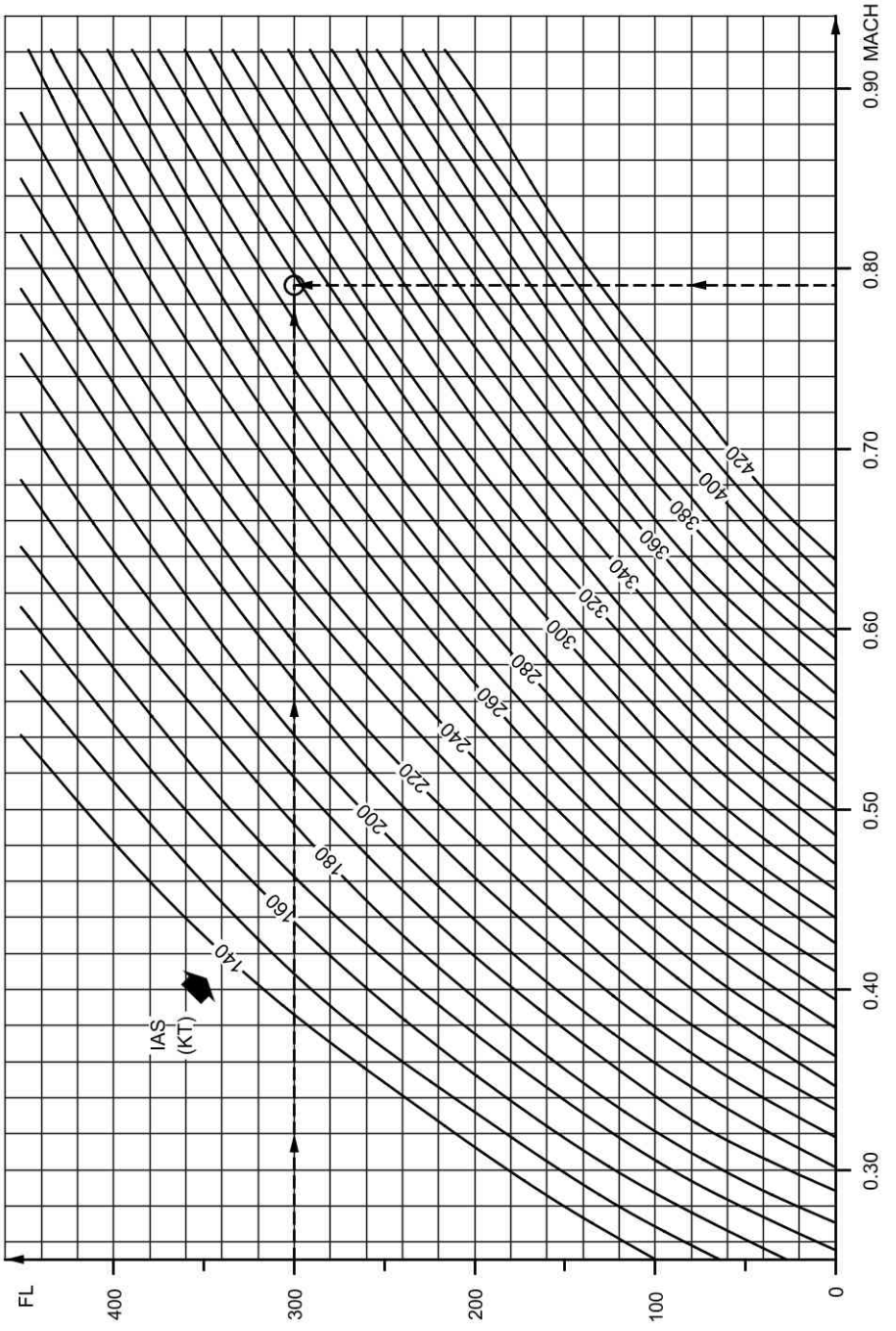
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = – 1.5 %	△FUEL = + 3 %	△FUEL = + 6 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

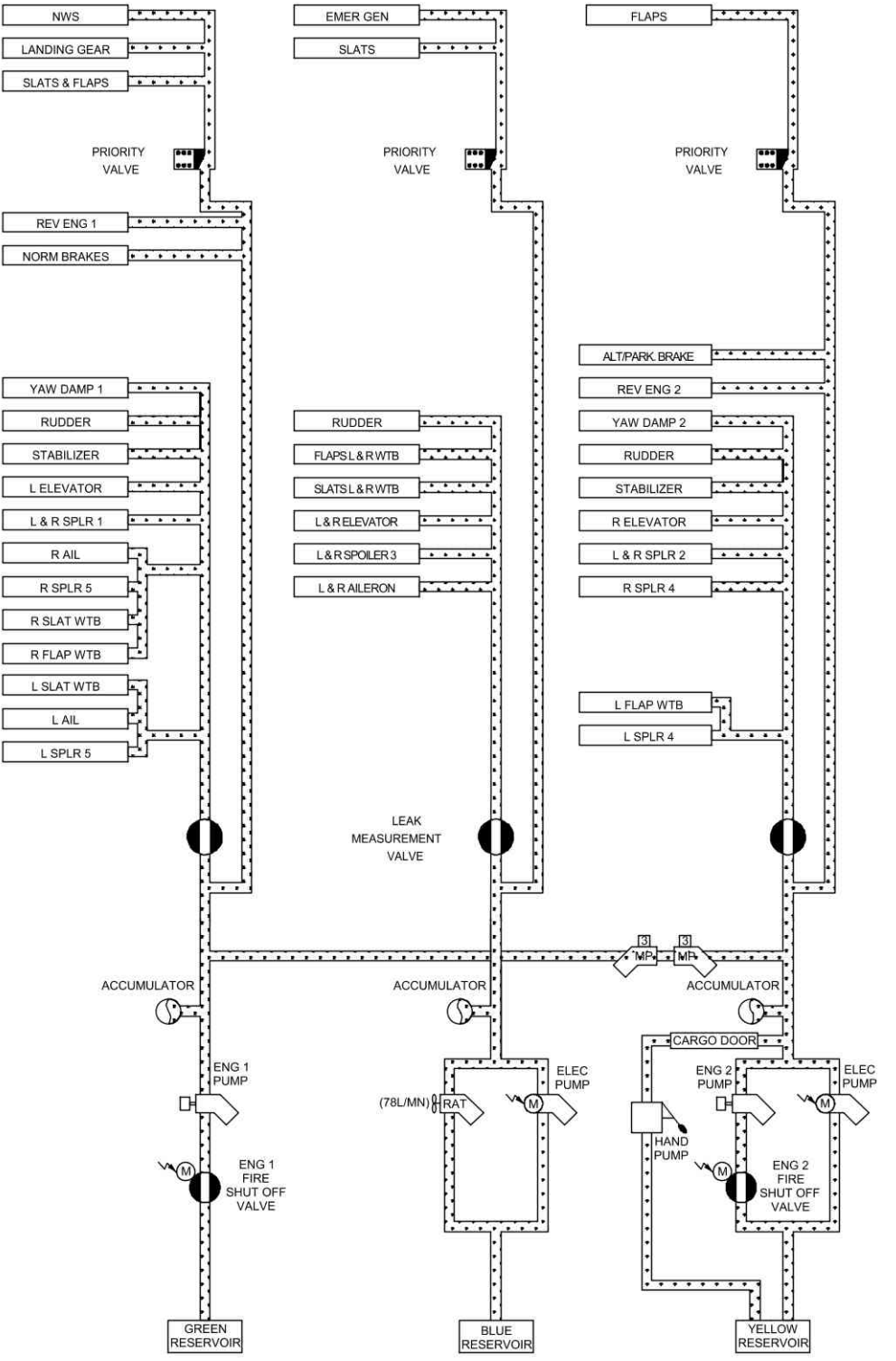
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

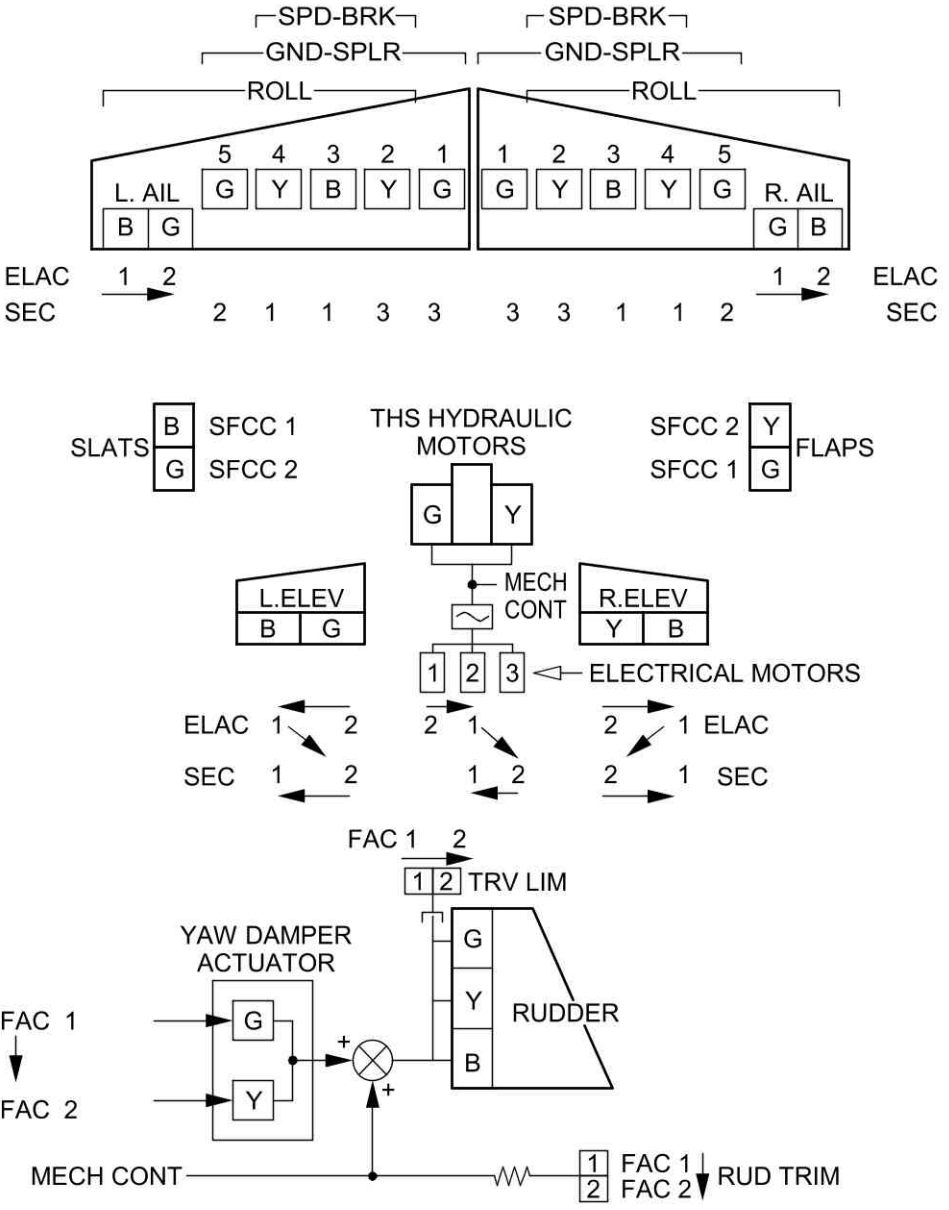
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSK**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSK**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSK**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSK**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSK**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSK**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSK**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSK**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSK**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSK**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSK**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSK**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSK**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSK**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSK**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSK**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSL

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSL**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSL**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSL**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSL**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSL**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSL**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSL**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSL**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSL** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSL** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	2229	HDA 0003	B-HSL	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K7727		30 AUG 10	EQUIPMENT/FURNISHINGS - MISCELLANEOUS EMERGENCY EQPT - INSTALL AN HONEYWELL ELT WITH CONTROL PANEL IN COCKPIT
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[9] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07

TAILSTRIKE..... 80.08
VOLCANIC ASH ENCOUNTER..... 80.09
[redacted] WINDSHEAR AHEAD [redacted]..... 80.10
[redacted] WINDSHEAR [redacted]..... 80.10A
WINDSHIELD/WINDOW ARCING..... 80.11
WINDSHIELD/WINDOW CRACKED..... 80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
11 Computer Reset Table..... 80.16
[redacted] EMERGENCY EVACUATION [redacted]..... 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.

Localization Title	Page	ID	Reason
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1..... OFF

  - **If smoke continues:**

    PACK 1..... ON
    PACK 2..... OFF

    - **If smoke still continues:**

      PACK 2..... ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL..... CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL..... OFF
    SMOKE DISSIPATION..... CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL..... CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER..... DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM
  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

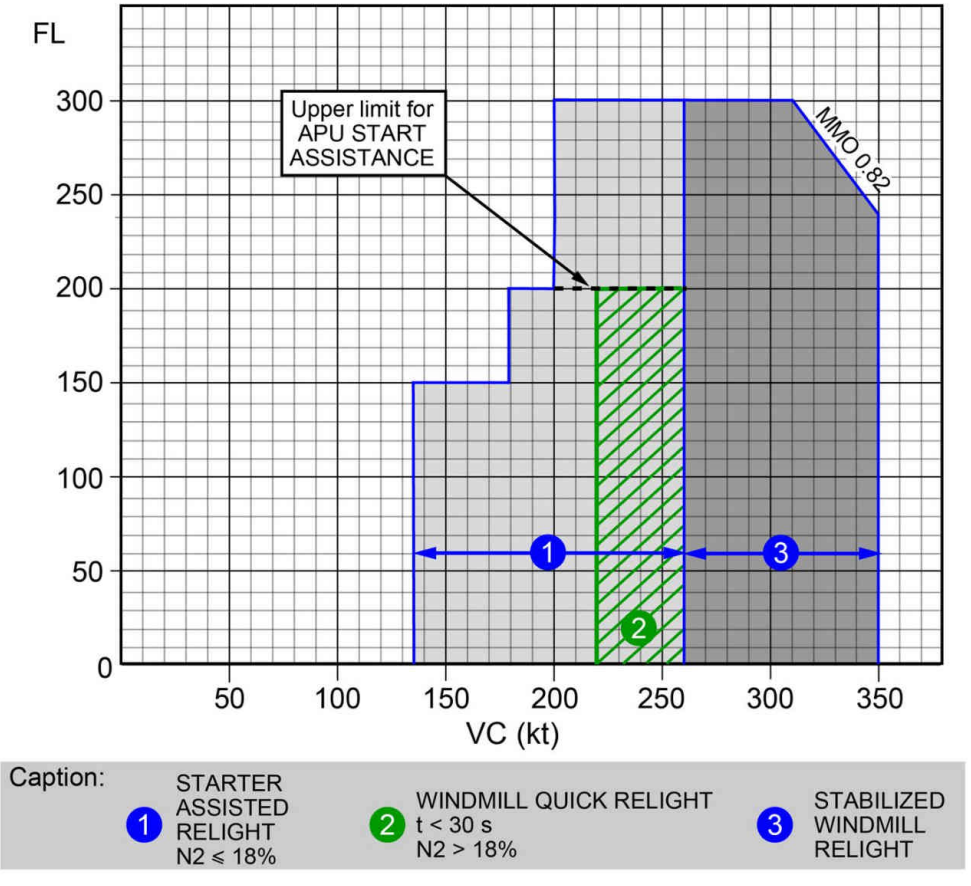
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

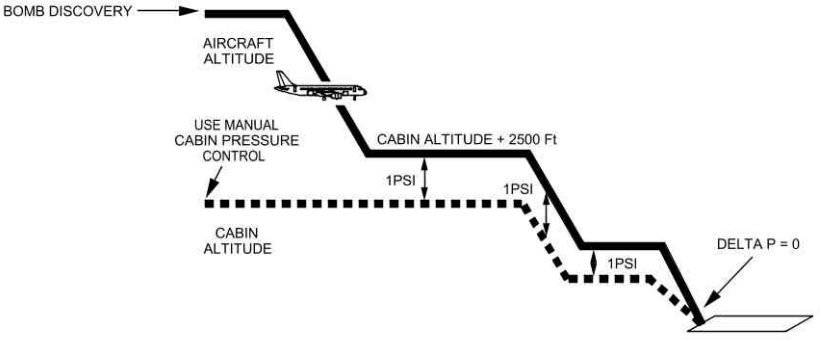
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

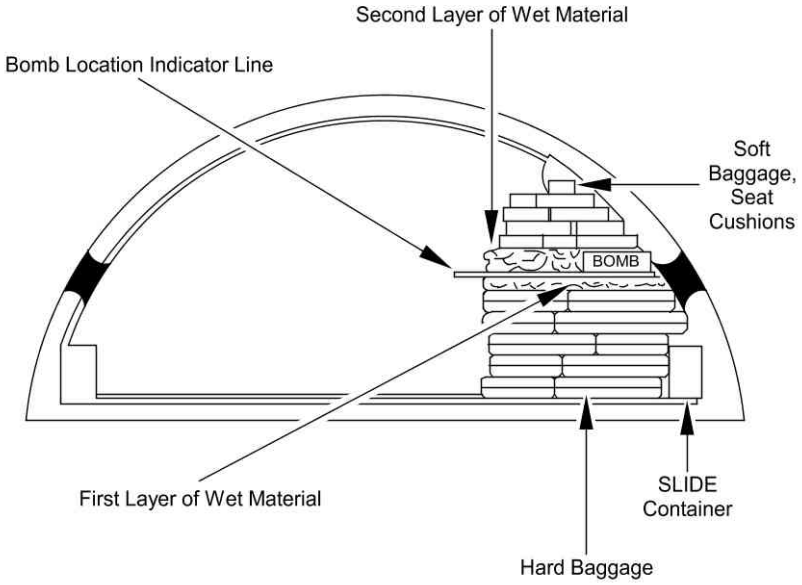
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⋘ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*

Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁✻) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.* **CAUTION** The FUEL AUTO FEED FAULT caution will be lost for the remainder of the flight. In flight: - If center tank is not empty, while one inner tank contains less than 5 000 kg (11 000 lb) of fuel: • FUEL MODE SEL (MAN) - When center tank is empty: • CTR TK PUMP 1 and 2 (OFF) • FUEL MODE SEL (MAN)
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note:* *In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

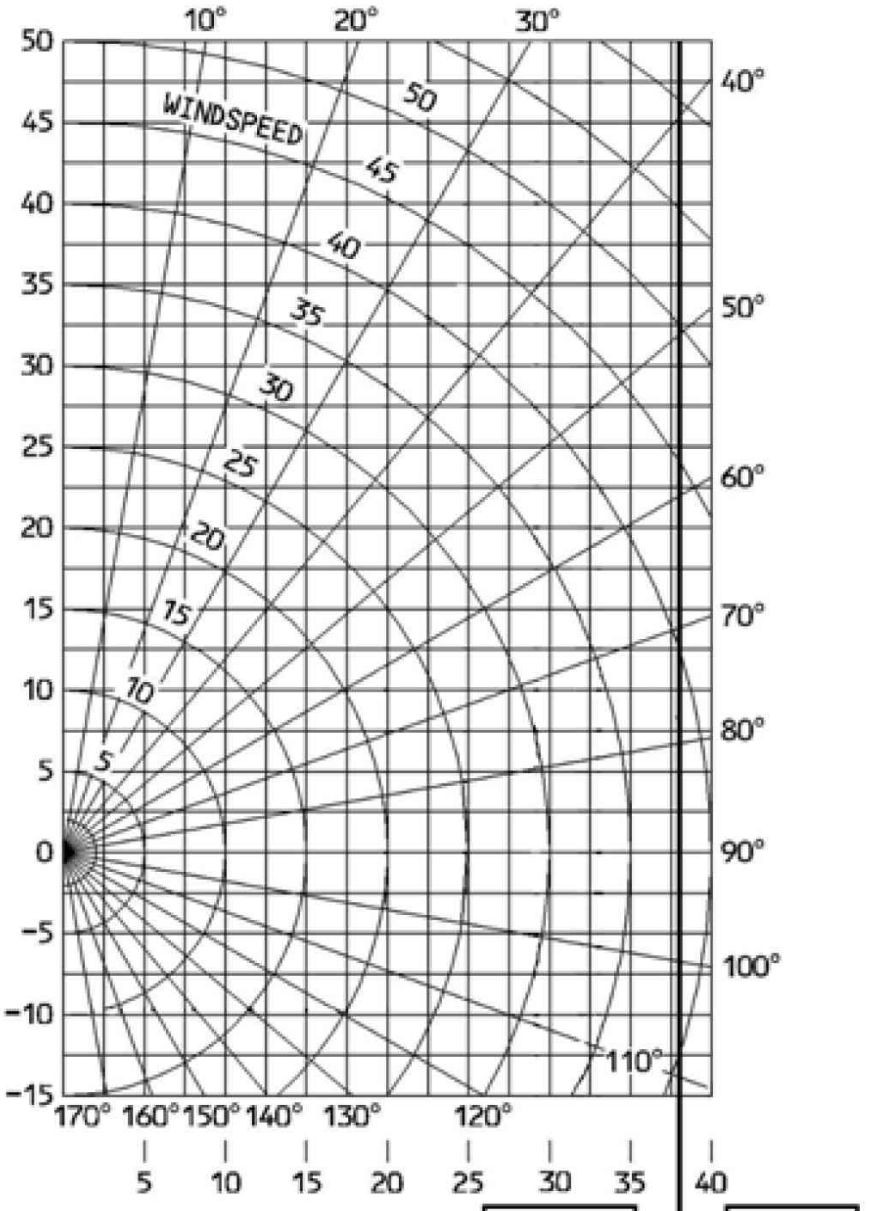
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

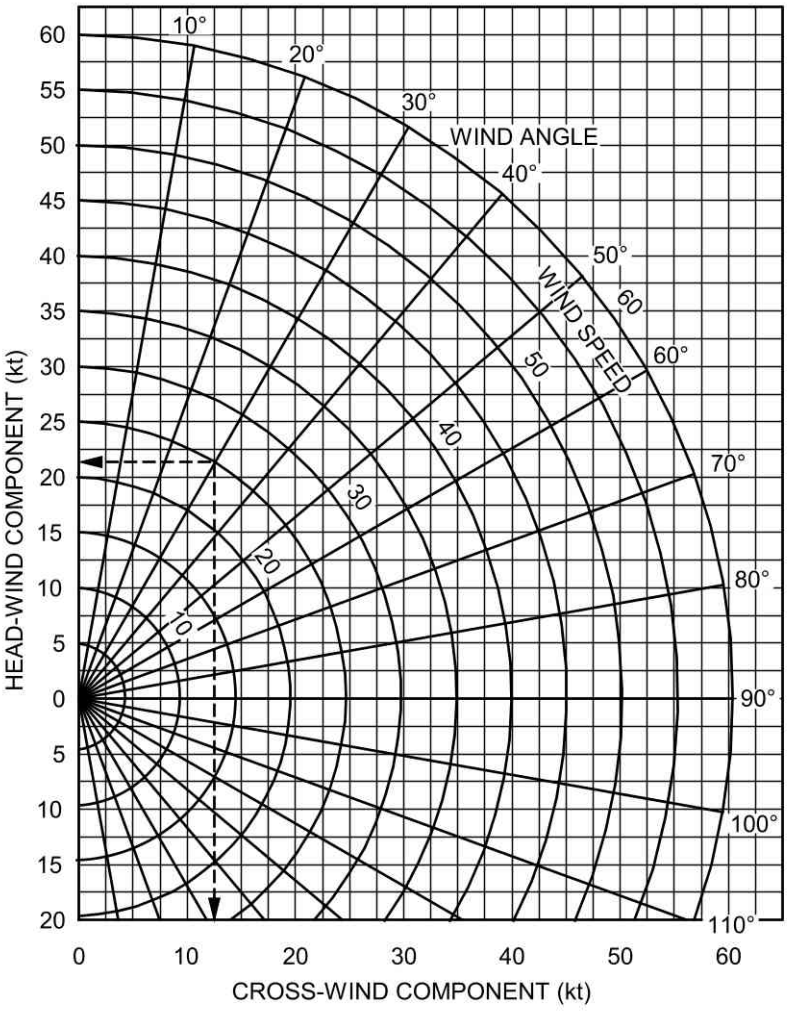
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

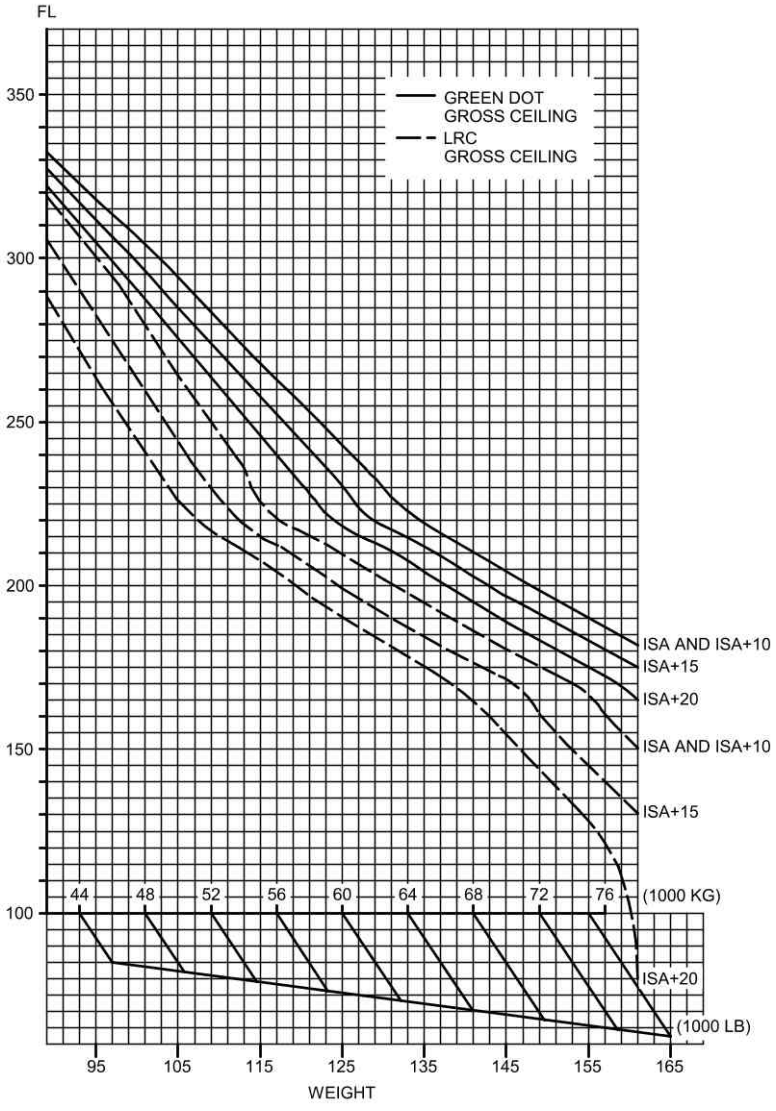
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

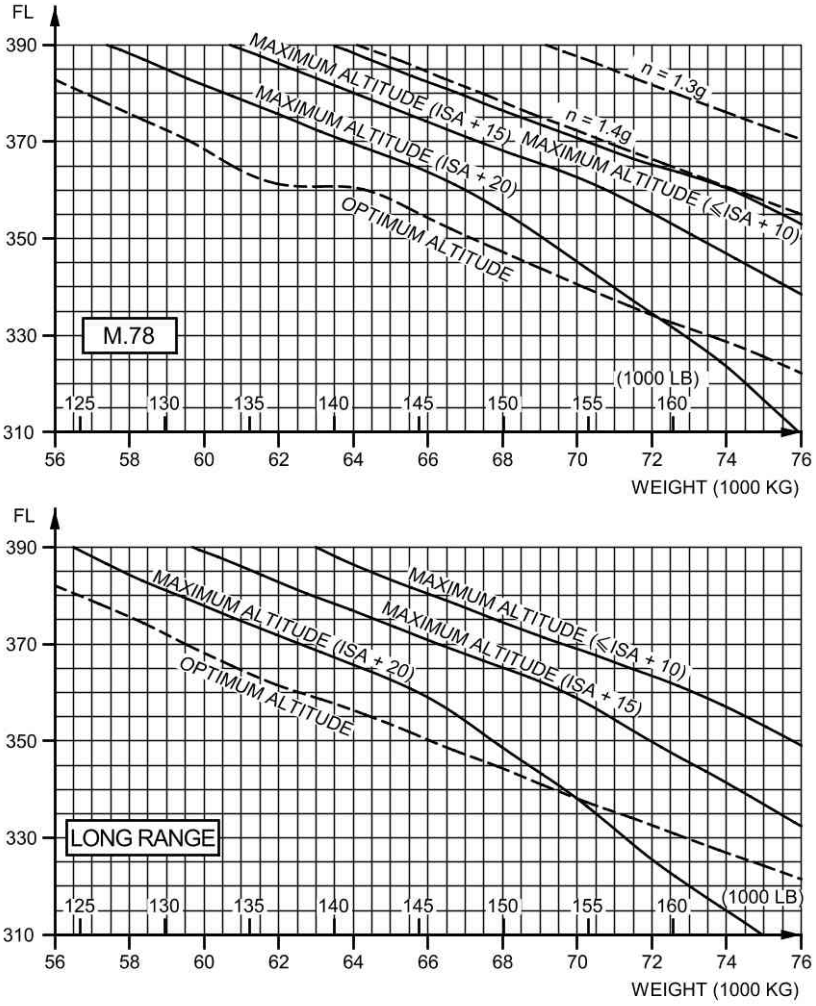
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

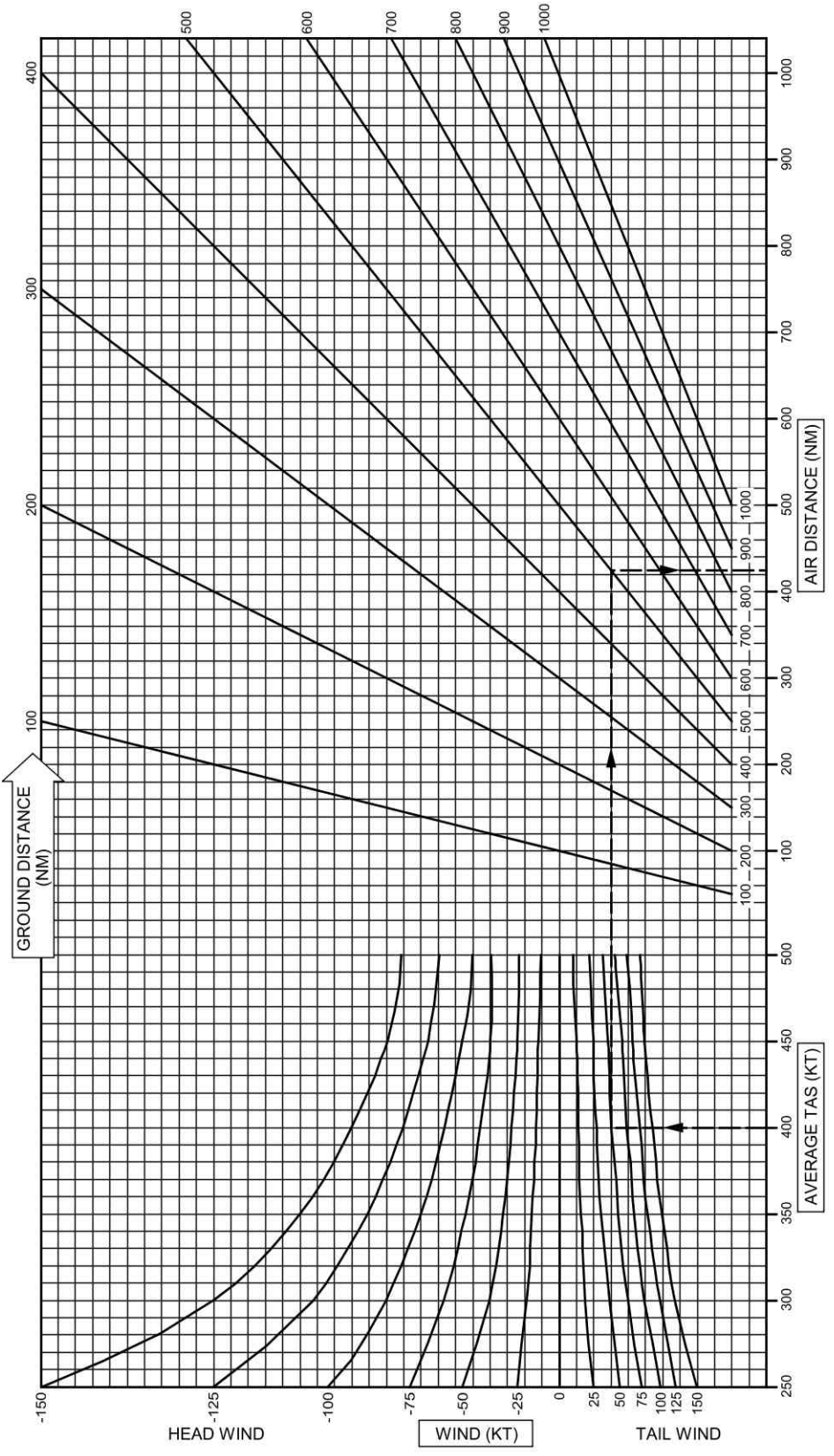
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	55	60	65	70	75	80
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35

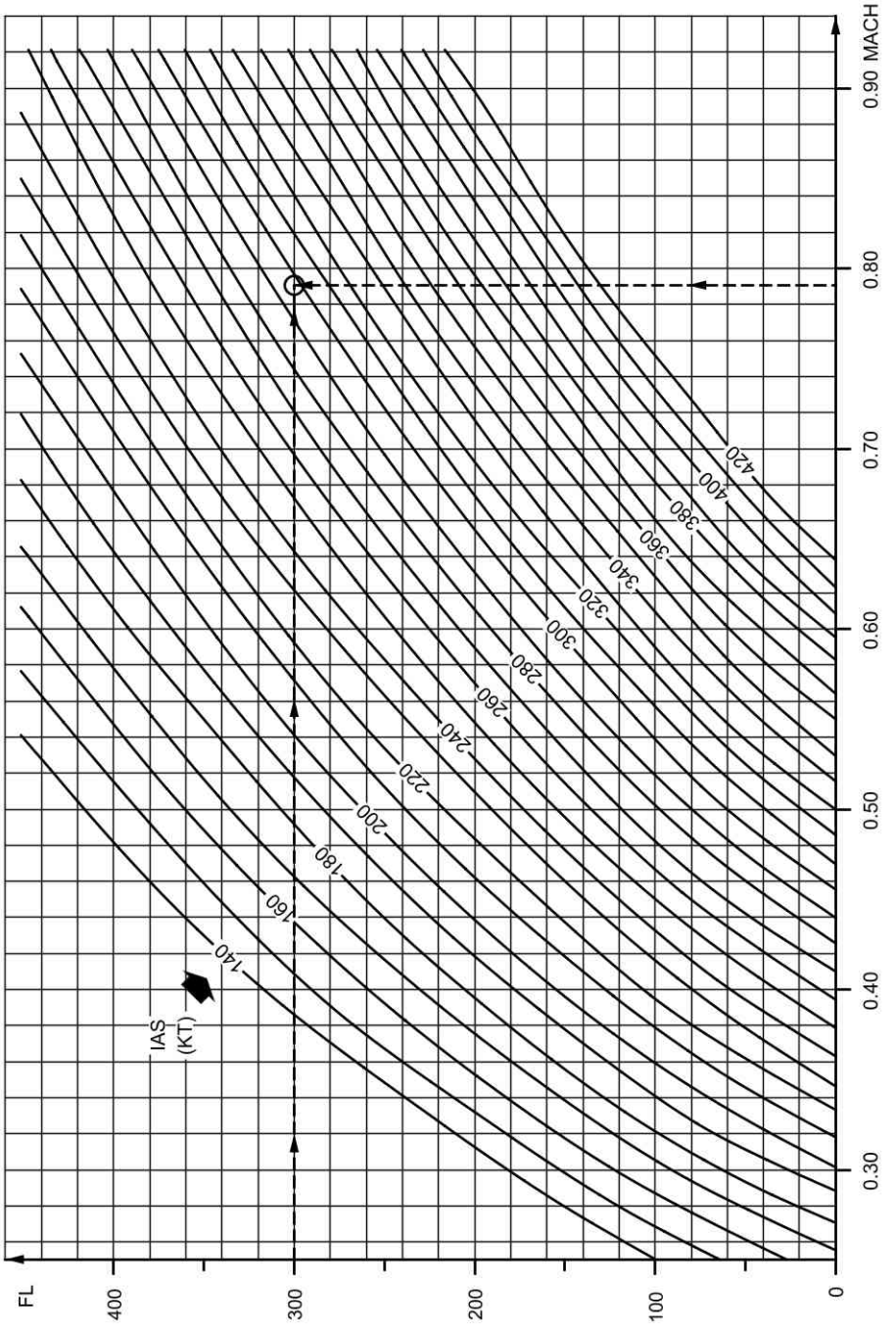
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = – 1.5 %	△FUEL = + 3 %	△FUEL = + 6 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

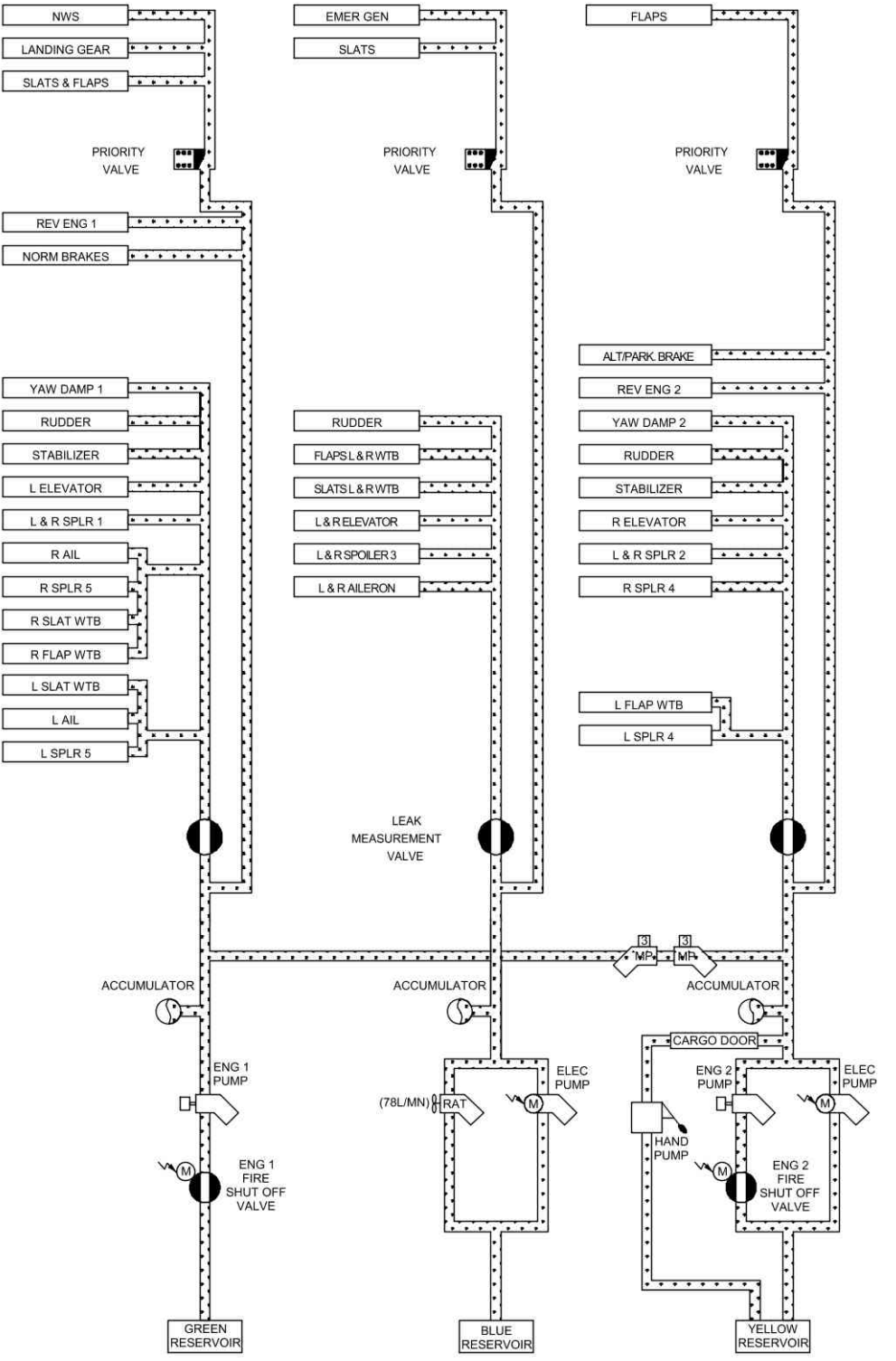
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

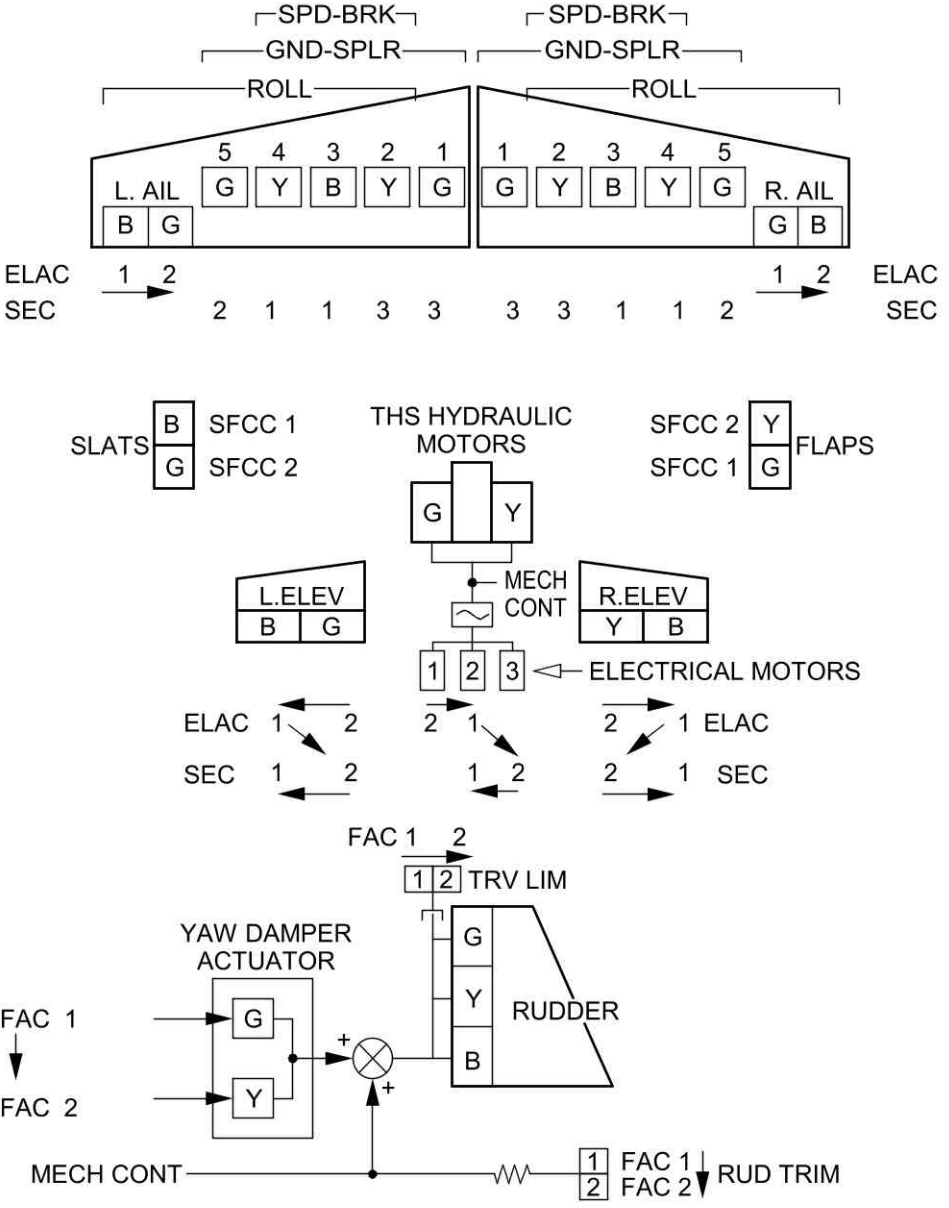
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSL**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSL**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSL**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSL**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSL**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSL**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSL**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSL**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSL**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSL**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSL**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSL**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSL**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSL**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSL**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSL**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSM

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSM**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSM**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSM**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSM**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSM**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSM**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSM**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSM**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSM** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSM** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	2238	HDA 0004	B-HSM	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	32-1360 00		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD10 (PRE EM2) FROM BSCU STD L4.9B (EM2).
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K7727		30 AUG 10	EQUIPMENT/FURNISHINGS - MISCELLANEOUS EMERGENCY EQPT - INSTALL AN HONEYWELL ELT WITH CONTROL PANEL IN COCKPIT
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[9] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07

TAILSTRIKE..... 80.08
VOLCANIC ASH ENCOUNTER..... 80.09
[redacted] WINDSHEAR AHEAD [redacted]..... 80.10
[redacted] WINDSHEAR [redacted]..... 80.10A
WINDSHIELD/WINDOW ARCING..... 80.11
WINDSHIELD/WINDOW CRACKED..... 80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
11 Computer Reset Table..... 80.16
[redacted] EMERGENCY EVACUATION [redacted]..... 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	1	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	4	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	9	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.

Localization Title	Page	ID	Reason
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING.....USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1..... OFF

  - **If smoke continues:**

    PACK 1..... ON
    PACK 2..... OFF

    - **If smoke still continues:**

      PACK 2..... ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL..... CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL..... OFF
    SMOKE DISSIPATION..... CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL..... CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Slats \ Flaps</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER..... DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

1

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

4 ## WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

7 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

8 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

9

FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached:**

ENG MODE SEL..... NORM
TCAS MODE SEL ◁✻ .....check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

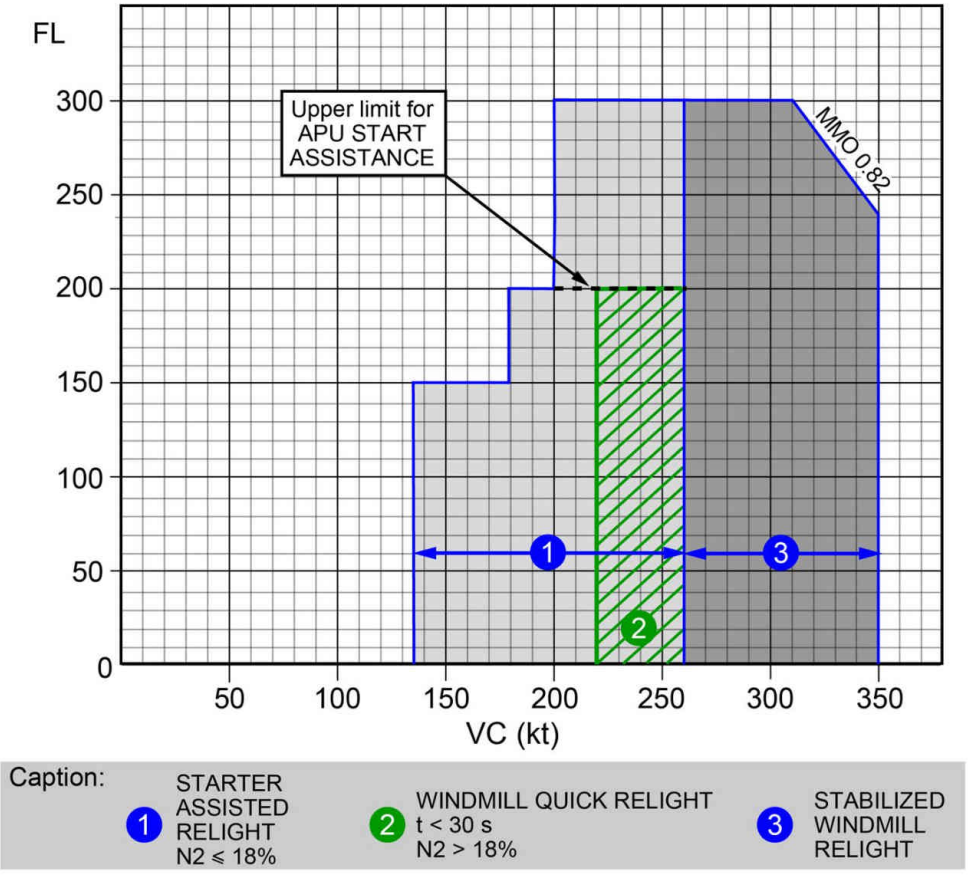
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight:**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

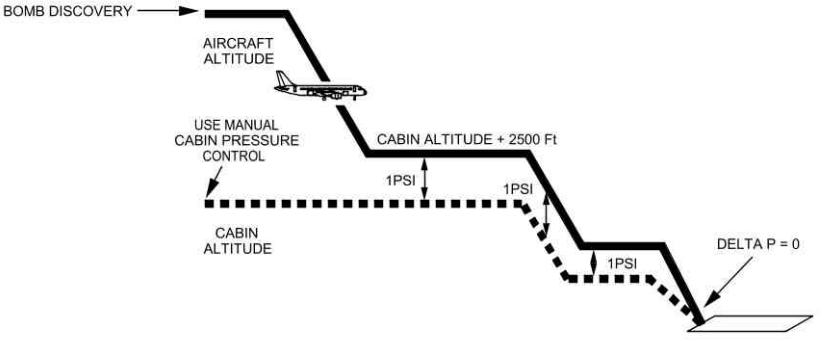
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON
    COMMERCIAL.....OFF

  FLAPS (fuel permitting).....AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL.....AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

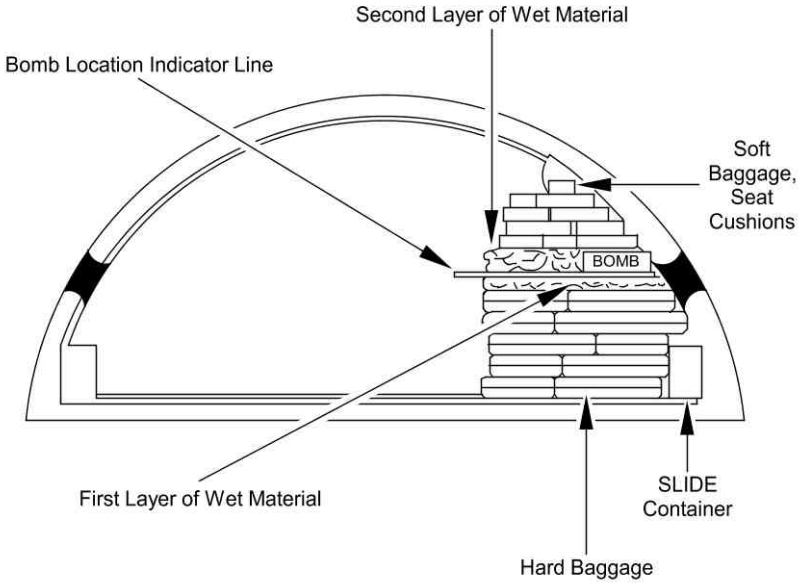
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU)..... OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING

If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁✻) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

⇩

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.* **CAUTION** The FUEL AUTO FEED FAULT caution will be lost for the remainder of the flight. In flight: - If center tank is not empty, while one inner tank contains less than 5 000 kg (11 000 lb) of fuel: • FUEL MODE SEL (MAN) - When center tank is empty: • CTR TK PUMP 1 and 2 (OFF) • FUEL MODE SEL (MAN)
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note:* *In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

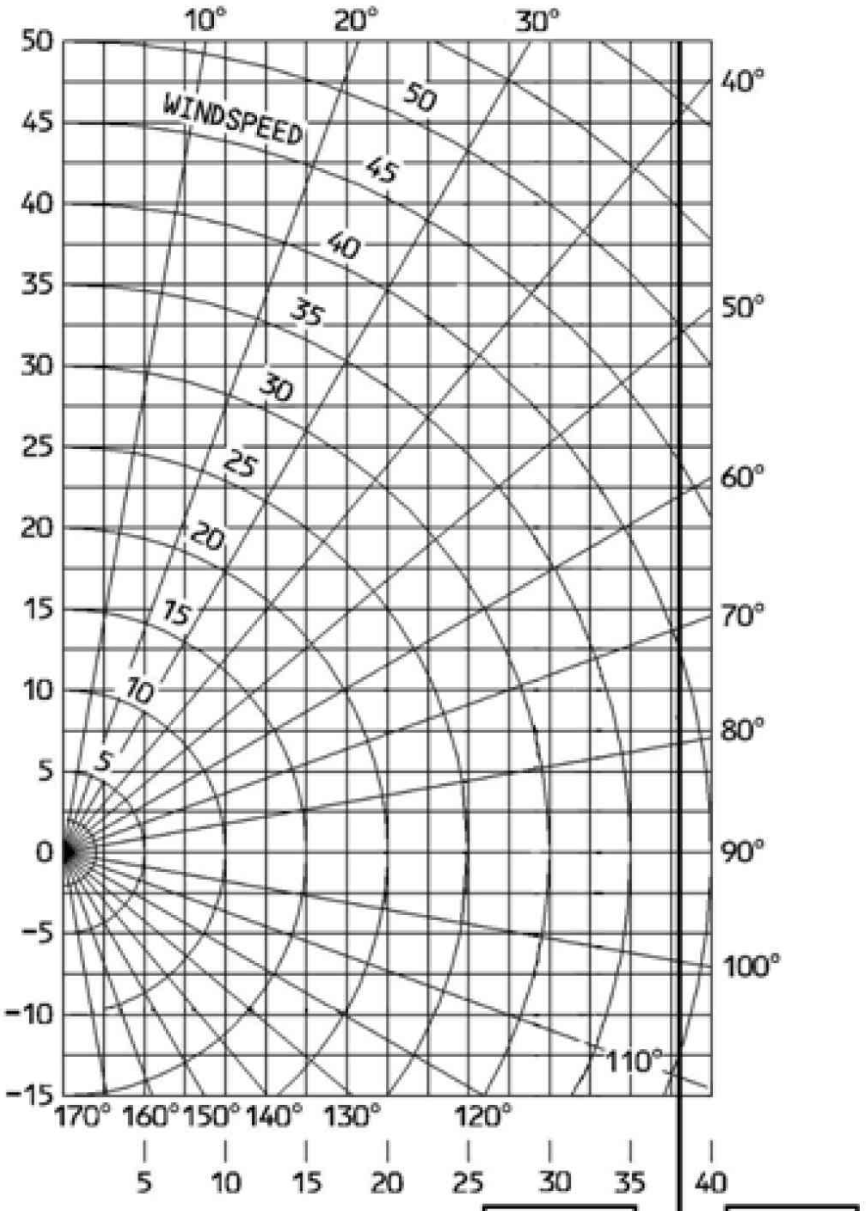
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

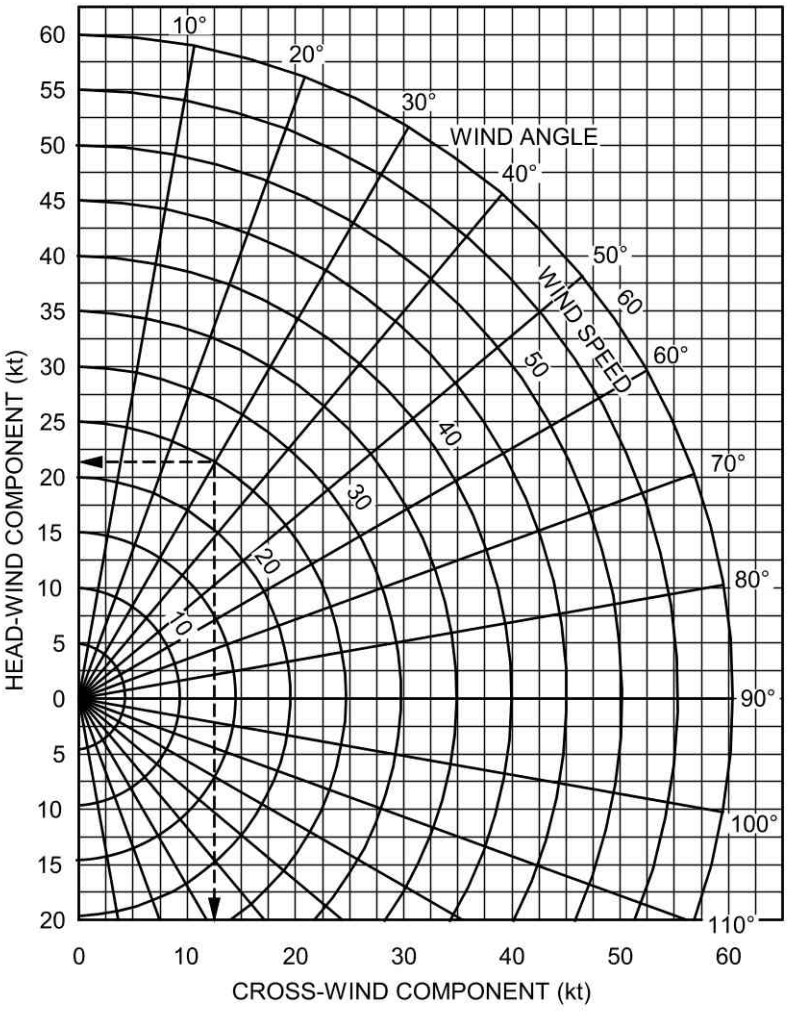
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

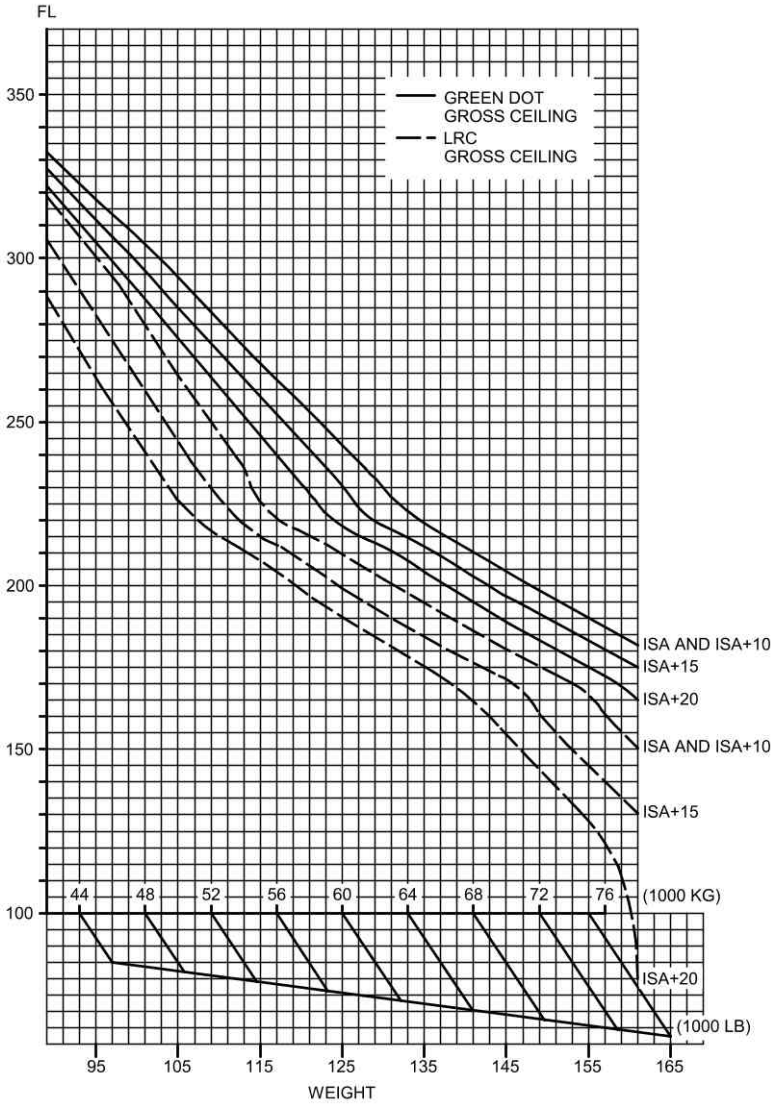
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

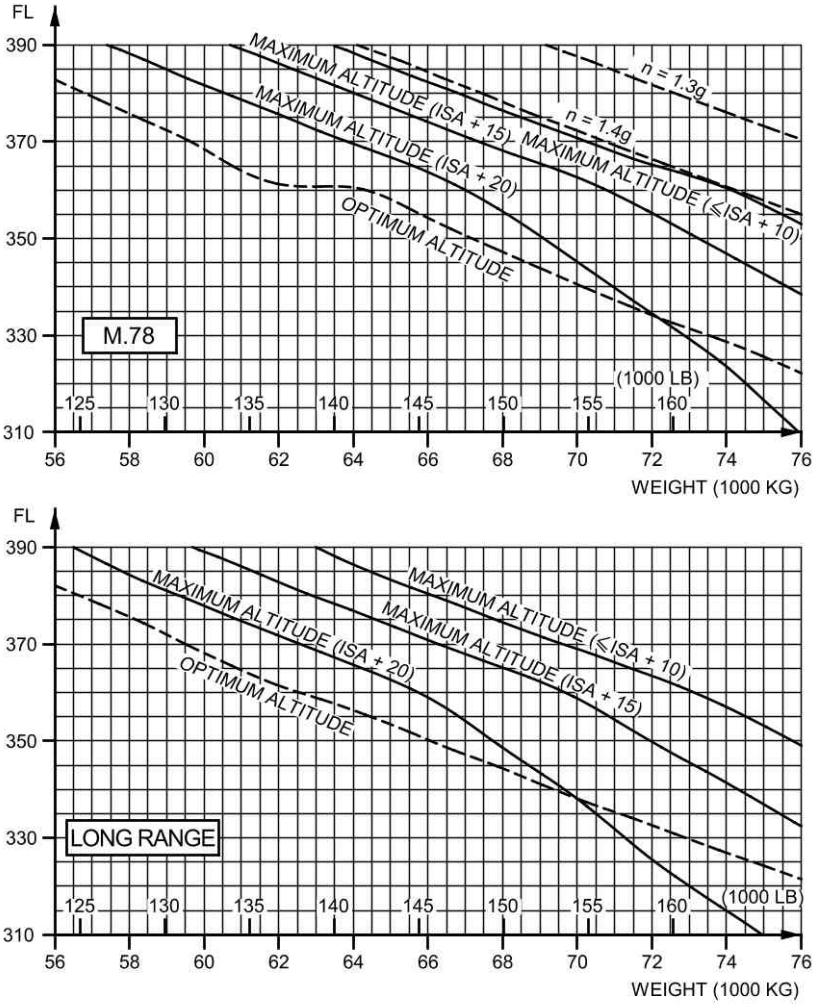
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

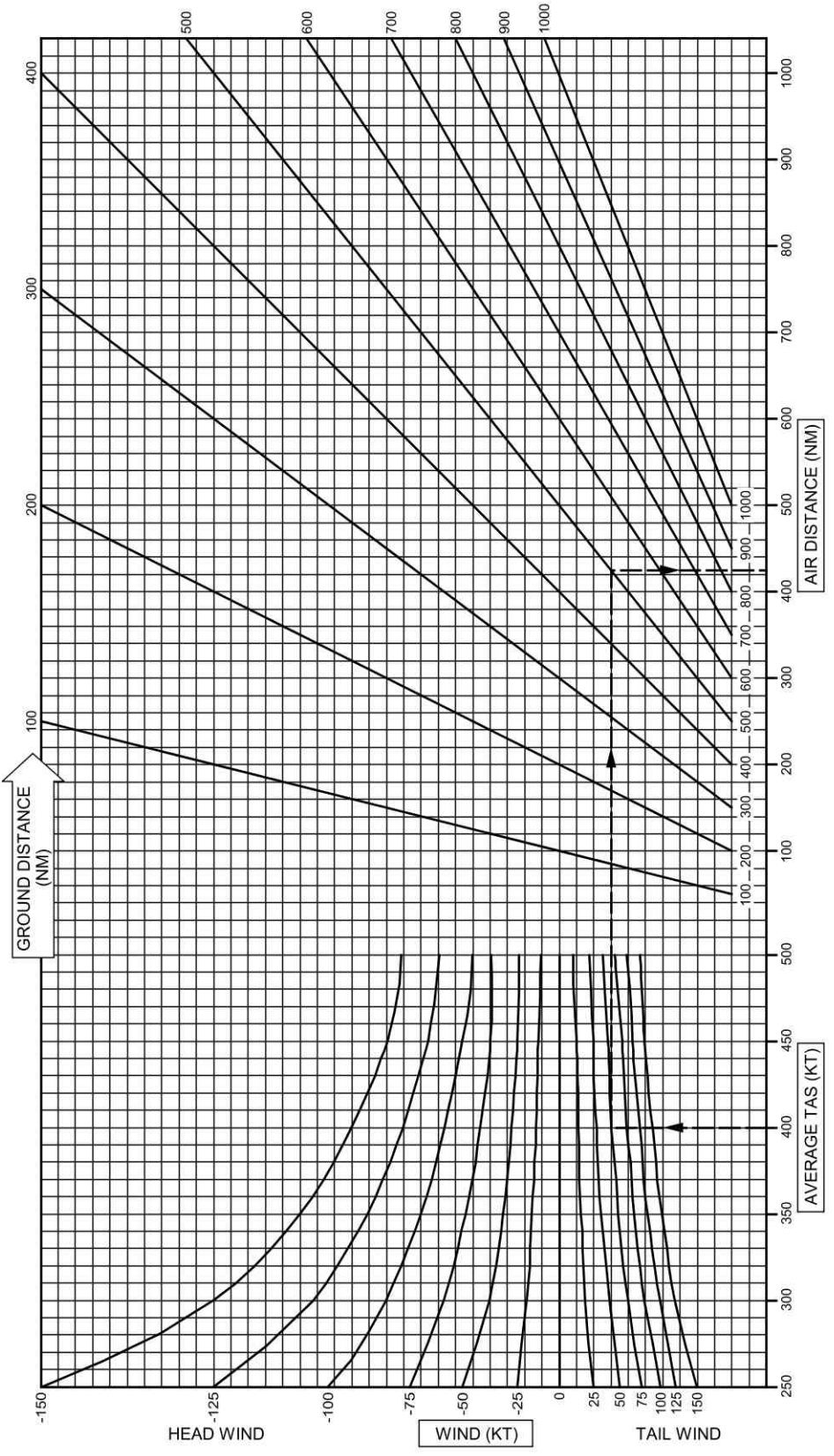
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

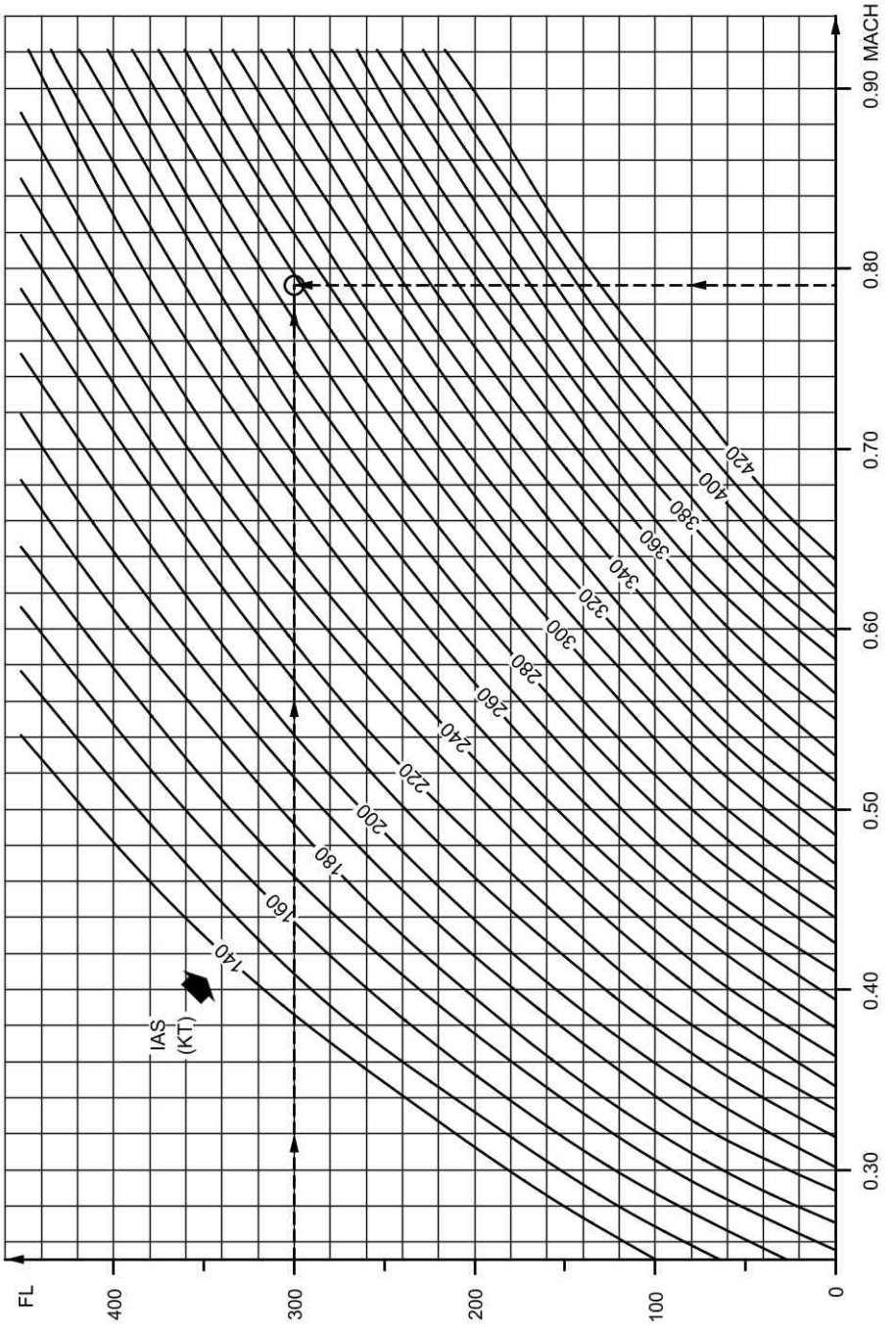
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

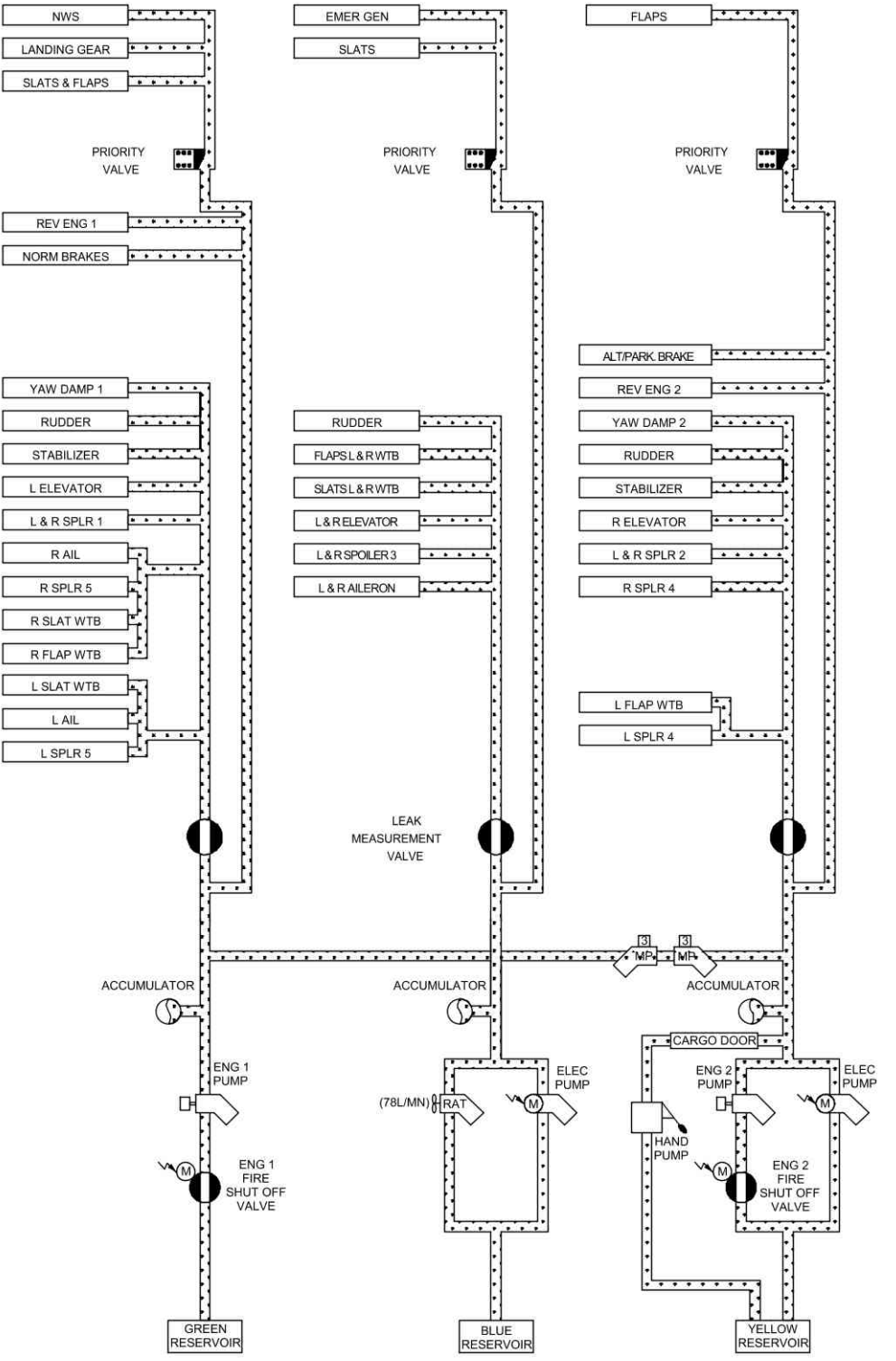
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

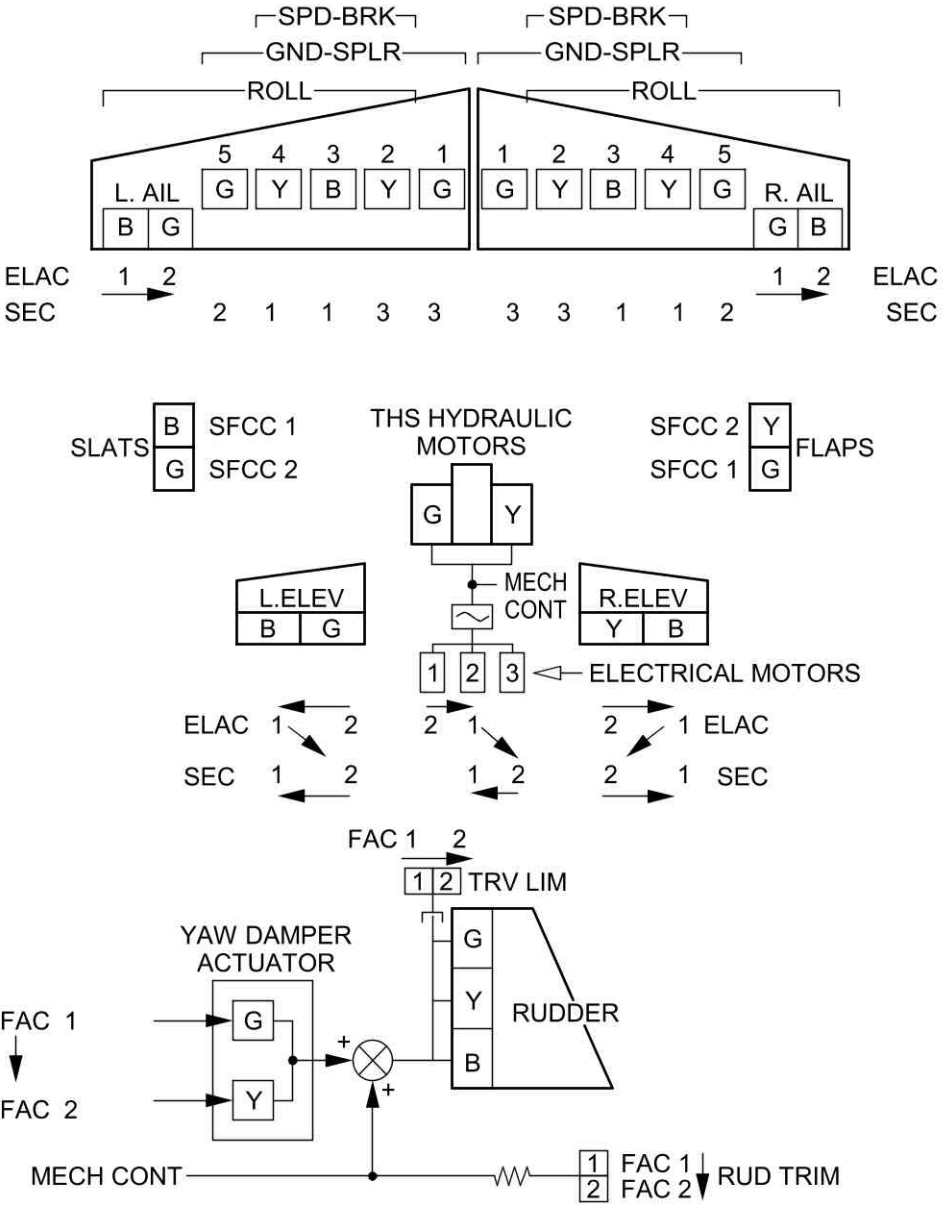
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSM**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSM**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSM**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSM**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSM**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSM**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSM**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSM**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSM**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSM**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSM**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSM**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSM**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSM**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSM**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSM**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSN

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSN**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HSN**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSN**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSN**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSN**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSN**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSN**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSN**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSN** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSN** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	2428	HDA 0005	B-HSN	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P4287	31-1113 30 31-1264 04	07 APR 11	INDICATING/RECORDING SYSTEMS - FWC - DEFINE OEB REMINDER WITHIN FWC STD -E1 AND SUBSEQUENT
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	K9231		30 AUG 10	EQUIPMENT/FURNISHINGS-MISCELLANEOUS EMERGENCY EQUIPMENT-INSTALL ELT WITH RCP IN COCKPIT ON ENH. PROV.-HONEYWELL
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[9] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07

TAILSTRIKE..... 80.08
VOLCANIC ASH ENCOUNTER..... 80.09
[redacted] WINDSHEAR AHEAD [redacted]..... 80.10
[redacted] WINDSHEAR [redacted]..... 80.10A
WINDSHIELD/WINDOW ARCING..... 80.11
WINDSHIELD/WINDOW CRACKED..... 80.12
ECAM Advisory Conditions..... 80.13
Tripped C/B Re-Engagement..... 80.14
Computer Reset..... 80.15
11 Computer Reset Table..... 80.16
[redacted] EMERGENCY EVACUATION [redacted]..... 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.

Localization Title	Page	ID	Reason
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

● **If fuel vapors:**

CAB FANS.....ON
PACK 1+2..... OFF

● **If no fuel vapors:**

CAB FANS.....OFF
PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

● **At FL 100 OR MEA:**

APU MASTER SW (if in ELEC EMER CONFIG)... ON
PACK 1+2.....OFF
MODE SEL.....MAN
MAN V/S CTL..... FULL UP
RAM AIR.....ON
APU MASTER SW.....OFF

● **If smoke persists, open CKPT window:**

MAX SPEED.....200 KT
COCKPIT DOOR.....OPEN
HEADSETS.....ON
PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION..... RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR..... MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2..... OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2..... ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR).....ON
  FUEL X FEED.....OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	250 kt	10.0 / CLB	10.5 / CLB	11.5 / CLB
FL 50 - FL 100		9.0 / CLB	9.5 / CLB	10.0 / CLB
FL 100 - FL 150		8.0 / CLB	8.5 / CLB	8.5 / CLB
FL 150 - FL 200		7.0 / CLB	7.0 / CLB	7.0 / CLB
FL 200 - FL 250	275 kt	5.0 / CLB	5.0 / CLB	5.0 / CLB
FL 250 - FL 320		4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 200	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE
FL 200 - FL 100	250 kt	1.5 / IDLE	0.5 / IDLE	-0.5 / IDLE
Below FL 100	250 kt	1.0 / IDLE	0.0 / IDLE	-1.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.5 / IDLE	2.5 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.5 / 55.7	5.5 / 51.5	6.0 / 47.3
1	S	7.5 / 58.2	7.5 / 54.0	7.5 / 49.0
1 + F (1)	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
2	F	9.0 / 61.7	9.0 / 57.3	9.0 / 52.8
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	7.5 / 67.2	7.5 / 62.7	7.5 / 57.9

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 67 t	67 t - 55 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	4.5 / 48.0	4.5 / 44.4	4.5 / 41.4

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE.....OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS..... ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR..... ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO..... SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

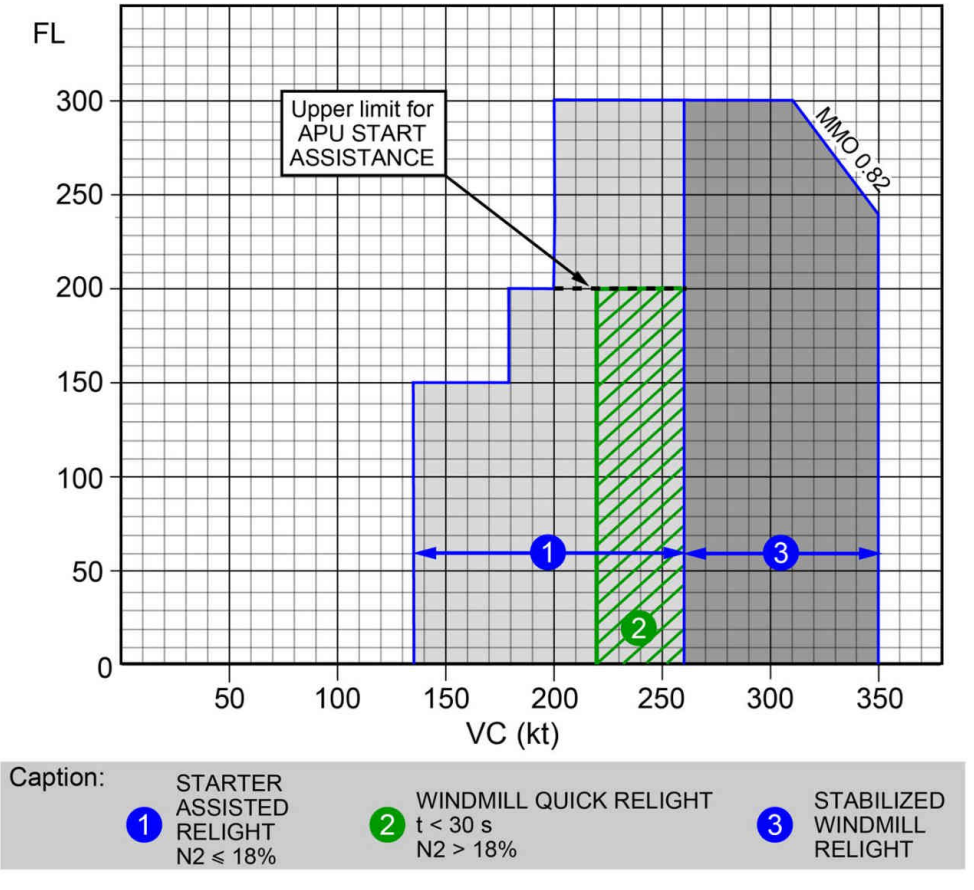
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

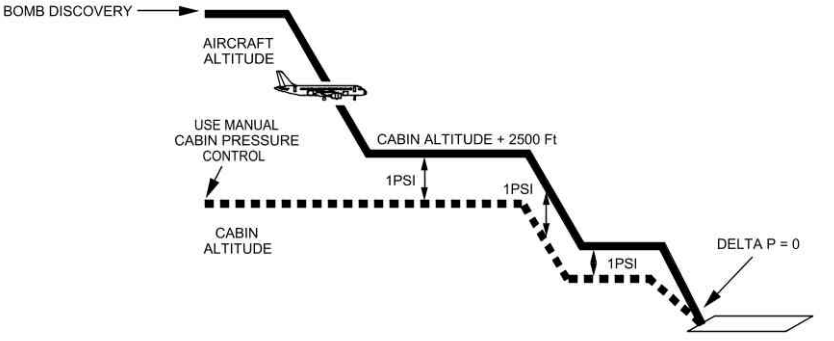
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON
    COMMERCIAL.....OFF

  FLAPS (fuel permitting).....AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL.....AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

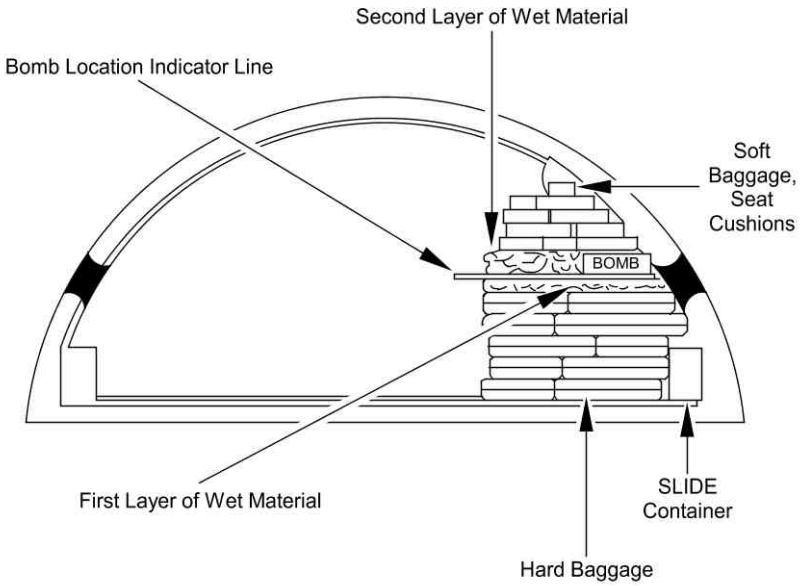
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⊰ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait 10 s, then - Push the C/B in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs in the following order: G02 on 49VU, M05 and N11 on 121VU. - Wait for 1 min, then: - Push the C/Bs in the following order: N11, M05, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁) of the FAP in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

⇩

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.* **CAUTION** The FUEL AUTO FEED FAULT caution will be lost for the remainder of the flight. In flight: - If center tank is not empty, while one inner tank contains less than 5 000 kg (11 000 lb) of fuel: • FUEL MODE SEL (MAN) - When center tank is empty: • CTR TK PUMP 1 and 2 (OFF) • FUEL MODE SEL (MAN)
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note:* *In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320	1/2	1	**20 Sep 2012 : Modification of content of the element 20803156.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

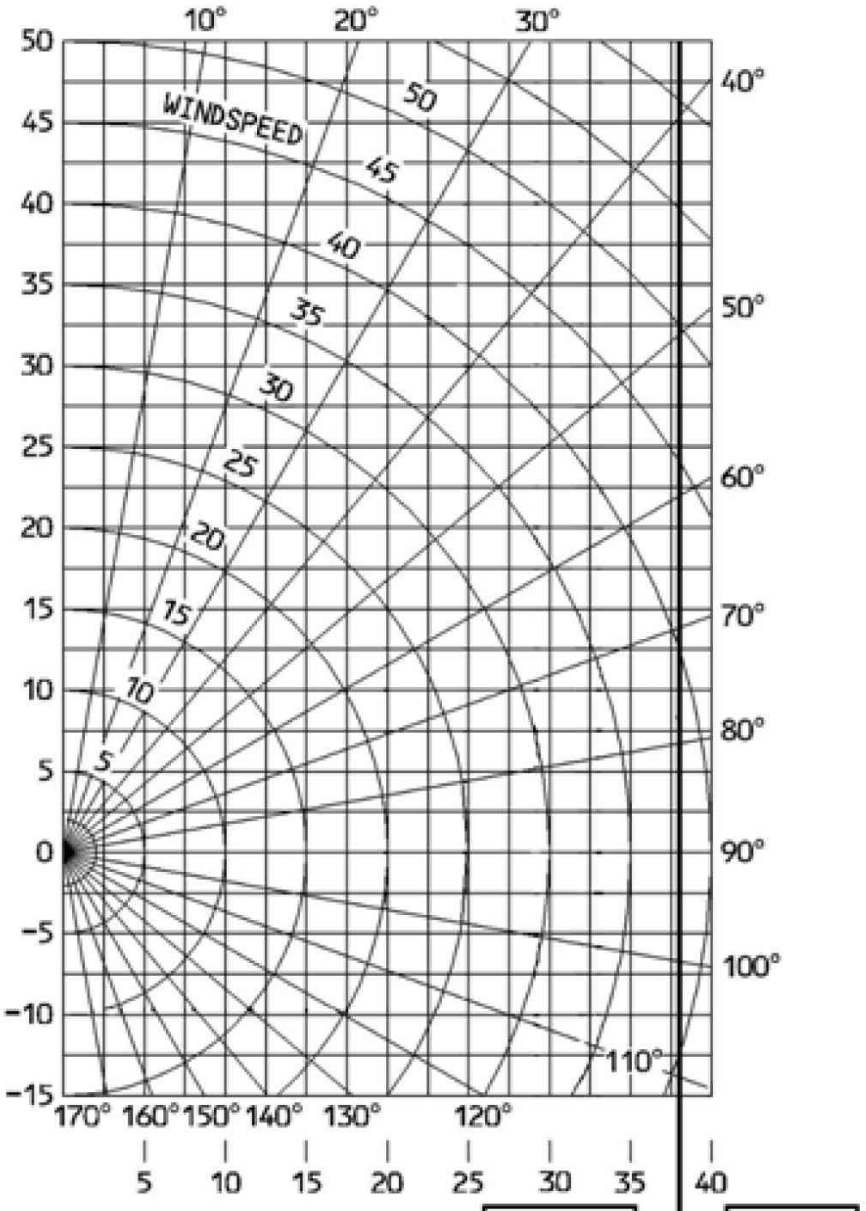
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

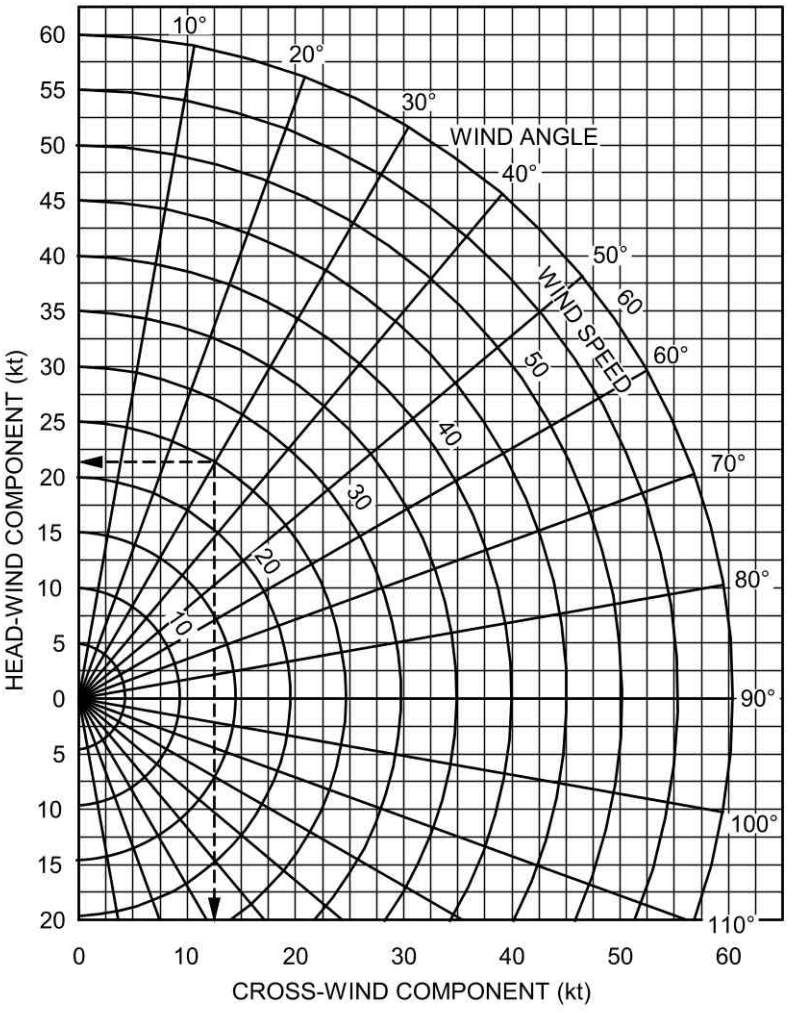
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
AUTO BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
AUTO BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
AUTO BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
AUTO BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
AUTO BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

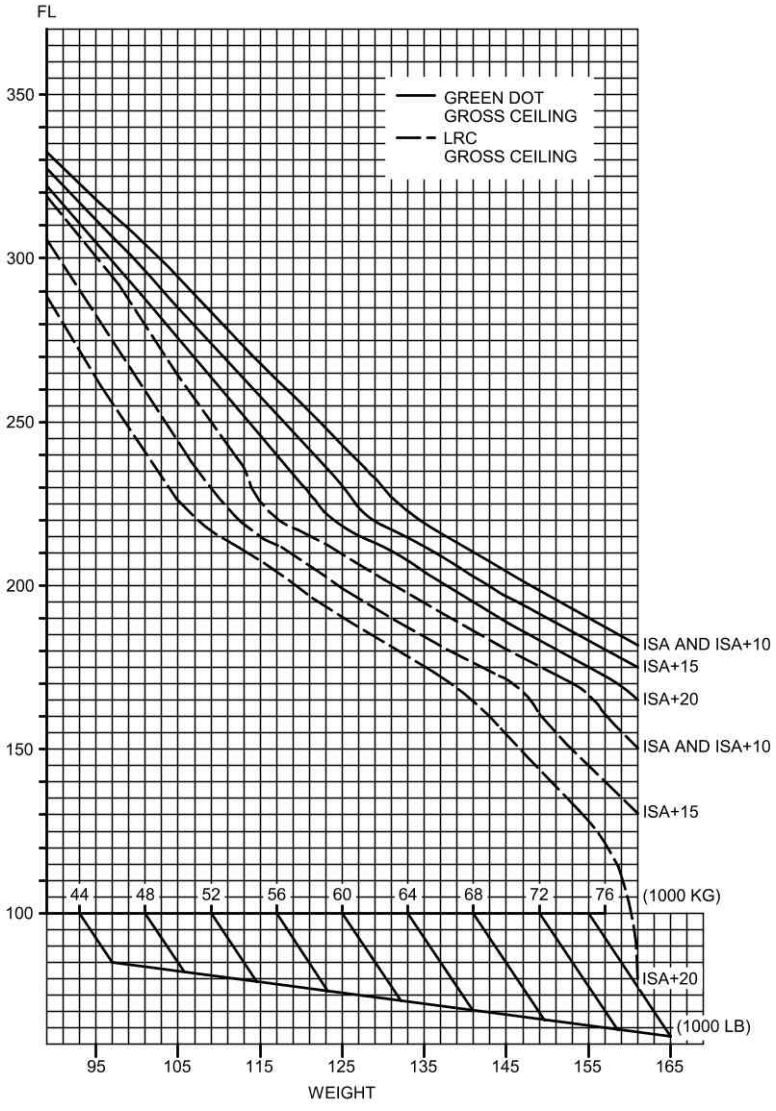
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

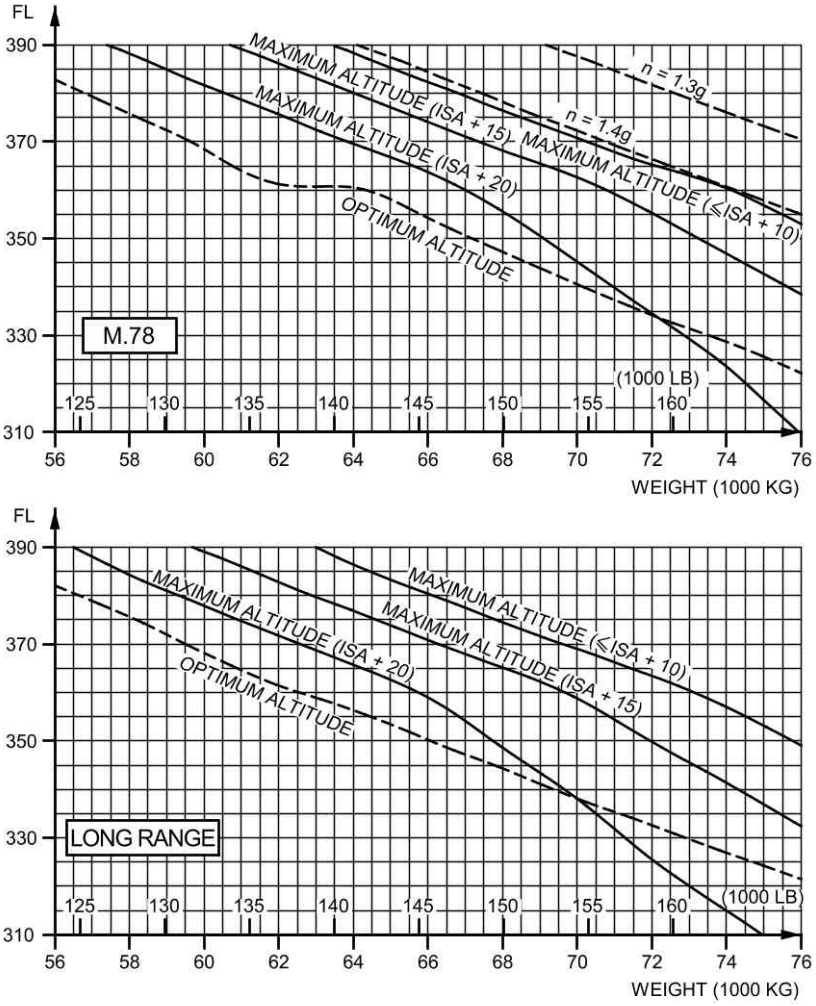
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

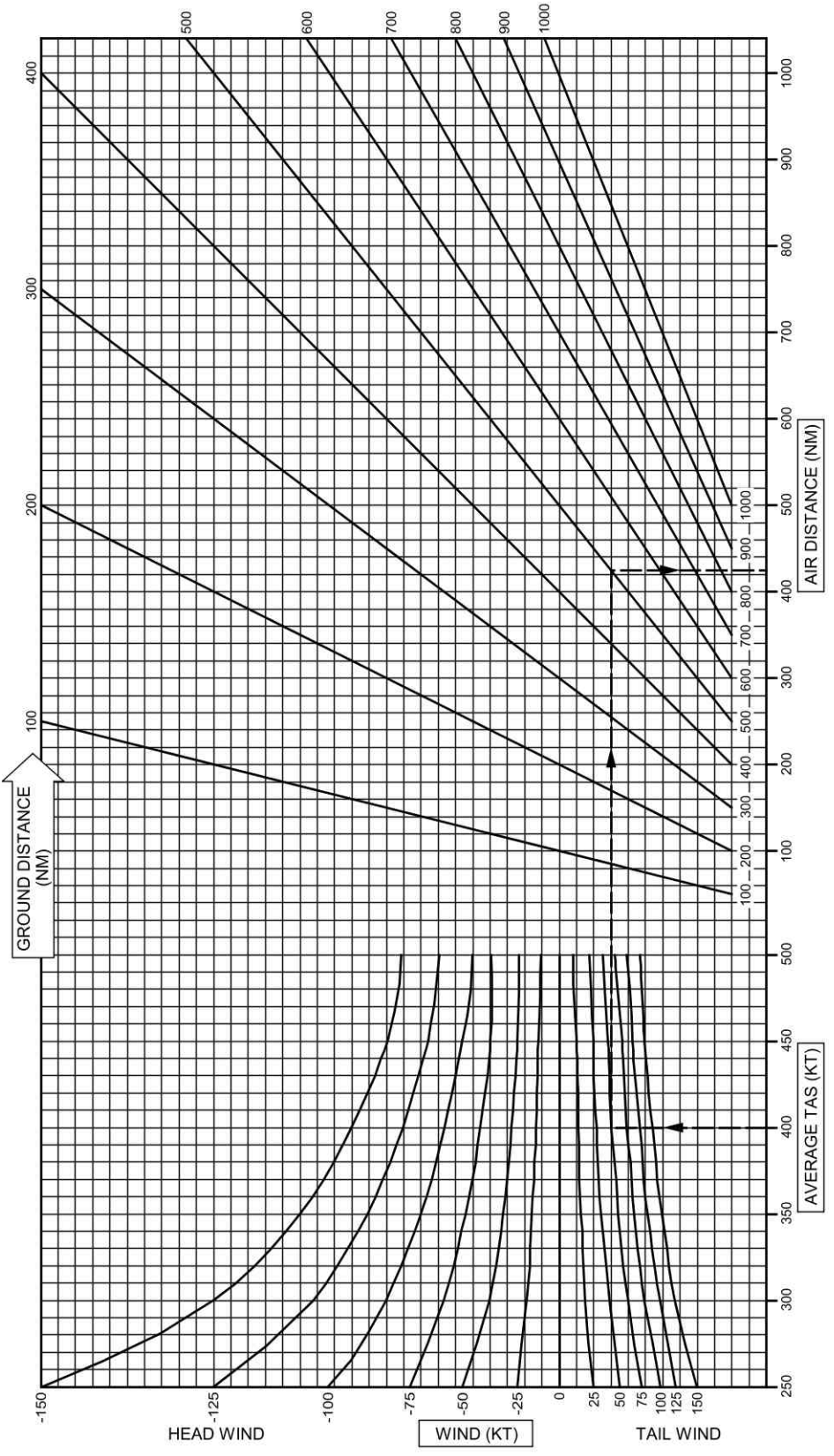
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

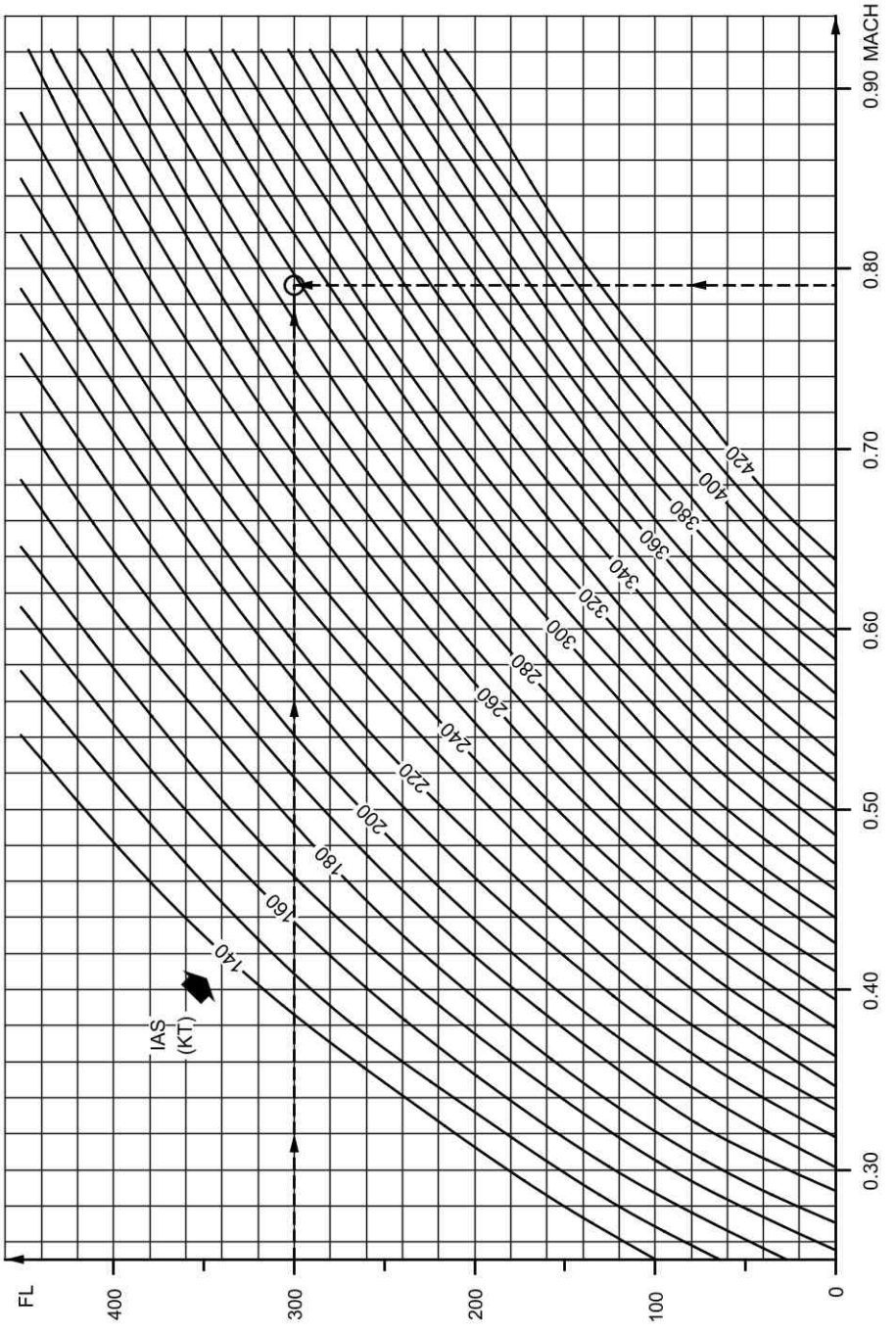
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

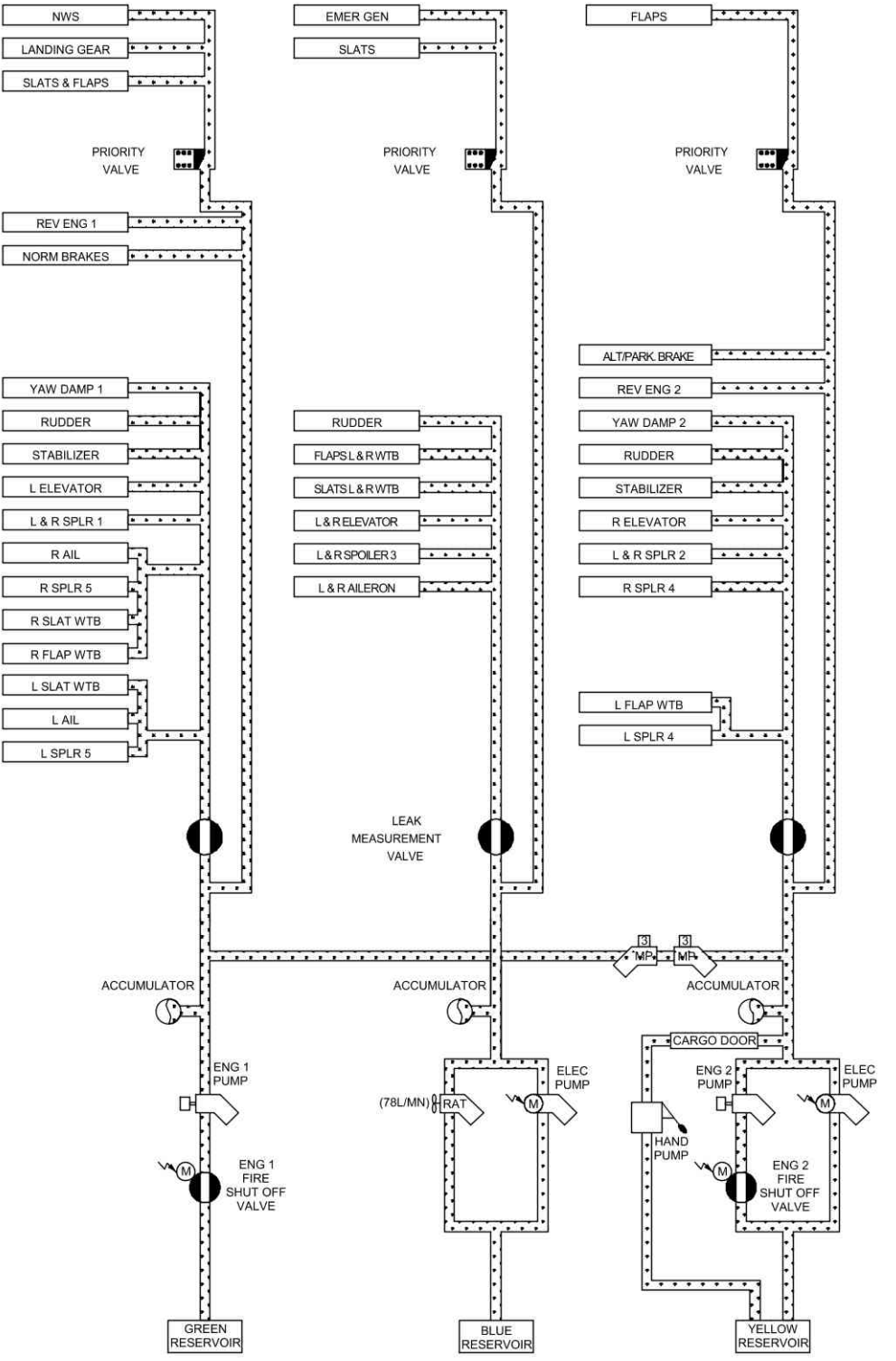
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

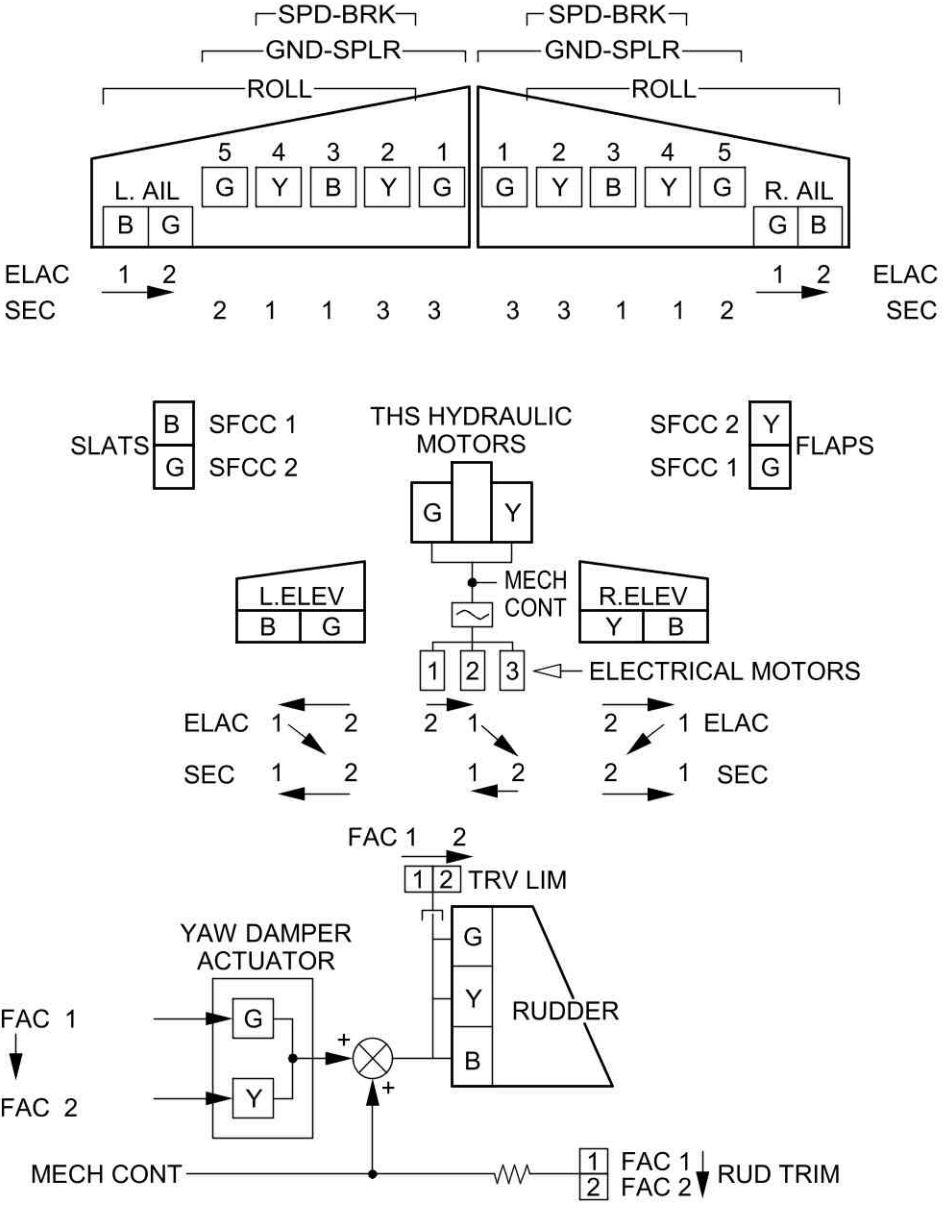
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSN**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HSN**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSN**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSN**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSN**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSN**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSN**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSN**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSN**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSN**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSN**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSN**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSN**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSN**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
• if spoilers 3+4 affected	
– SPD BRK .....DO NOT USE	INOP SYS
LDG DIST PROC.....APPLY	SPLR(affected)
	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3..... ON
LANDING PERFORMANCE ASSESSMENT..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSN**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSN**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSO

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSO**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSO**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSO**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSO**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSO**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSO**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSO**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSO** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
E	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013738.0001001	03 AUG 12
	Criteria: K10463 **Applicable to: B-HSO** *Impacted DU: NONE*			
N	ABN-80	**Computer Reset Table- 25 - Equipment**	00013739.0001001	03 AUG 12
	Criteria: K11047 **Applicable to: B-HSO** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit (TDU) provides Operators with the CDSS reset procedure in case of flickering or total loss of the video camera on the ECAM System Display (SD), accompanied by the VIDEO NOT AVAIL message.*			
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSO** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	4023	HDA 0057	B-HSO	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P9355		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - REMOVE WXR TRANSCEIVER COLLINS -623 AND DEACTIVATE PWS (ANTI-MOD 32740/26560)
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	P9907		07 APR 11	INDICATING RECORDING SYSTEM - FLIGHT WARNING COMPUTER (FWC)- INSTALL FWC STANDARD H2-F4
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K9458		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL IMPROVED AIR COND. SYSTEM CONTROLLER PN 1803B0000-01
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P10267		07 APR 11	NAVIGATION - RADIO MAGNETIC INFORMATION SWITCHING AND INDICATING - RE-INSTALL THALES DDRMI VOR/DME INDICATORS
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	K6443		07 APR 11	AIR CONDITIONING-AIR COOLING- INSTALL A NEW ECS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04
ASYMMETRIC BRAKING..... 32.05

ABN-34 Navigation

[8] ■ ALL ADR OFF ■..... 34.02
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[9] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[10] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[11] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07

■ Stall Warning at Lift-Off ■ 80.07
TAILSTRIKE 80.08
VOLCANIC ASH ENCOUNTER 80.09
■ WINDSHEAR AHEAD ■ 80.10
■ WINDSHEAR ■ 80.10A
WINDSHIELD/WINDOW ARCING 80.11
WINDSHIELD/WINDOW CRACKED 80.12
ECAM Advisory Conditions 80.13
Tripped C/B Re-Engagement 80.14
Computer Reset 80.15
12 Computer Reset Table 80.16
■ EMERGENCY EVACUATION ■ 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ALL ADR OFF	2/4	8	Documentation update: Deletion of the "00010842.0042001 ALL ADR OFF" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	10	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	11	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	12	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-32 ASYMMETRIC BRAKING	32.05	2	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 ALL ADR OFF	34.02	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.

Localization Title	Page	ID	Reason
ABN-80 Computer Reset Table- 25 - Equipment	80.16D	5	Documentation update: Addition of "Computer Reset Table- 25 - Equipment" documentary unit
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	6	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	7	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2.....OFF
BLOWER + EXTRACT.....OVRD
Cabin air is extracted overboard.
ΔP..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2.....OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2.....OFF
BLOWER + EXTRACT..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	ABCU	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.
(b) Crew oxygen valve inoperative.
(c) Lost, when speed is below 50 kt.
(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING.....USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER..... DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

2 Apply brake progressively on the available side. Counter swing with the rudder. Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

Intentionally left blank

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	*The altitude displayed on the PFD is a GPS altitude.*

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.

Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

1

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

  LDG GRVTY EXTN.....DOWN

CAUTION	*All gear doors remain open.*

- **WHEN L/G DOWNLOCKED:**

  L/G lever.....DOWN

  GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

  MAN V/S CTL.....FULL UP

CAUTION	Check that the outflow valve is fully open and that cabin altitude is at airfield elevation before opening the doors.

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET

ALL ADR OFF (Cont'd)

F/CTL PROT
ADR 1+2+3
RUD TRV LIM
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR ◁

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

To monitor speed, refer to IRS Ground Speed or GPS Ground Speed variations.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

■ **If at least one ADR is reliable:**

Faulty ADR(s).....OFF

REMAINING AIR DATA.....CONFIRM

Alternates sources may be used to evaluate the air data:

- *GPS altitude.*
- *GPS and IRS ground speeds, taking into account altitude and wind effect.*

■ **If affected ADR(s) cannot be identified, or if all ADRs are affected:**

■ **When above FL 250:**

ONE ADR.....KEEP ON

TWO ADRs..... OFF

This prevents the flight control laws from using two coherent but unreliable ADR data.

For flight continuation, *Refer to Climb, Cruise and Descent tables.*

■ **When below FL 250, if speed still unreliable:**

ALL ADRs P/B..... OFF

All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

SPD..... FLY THE GREEN

NAV ADR 1+2+3 FAULT

4 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

5 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

6 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 250	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
COMMERCIAL.....OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM
  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

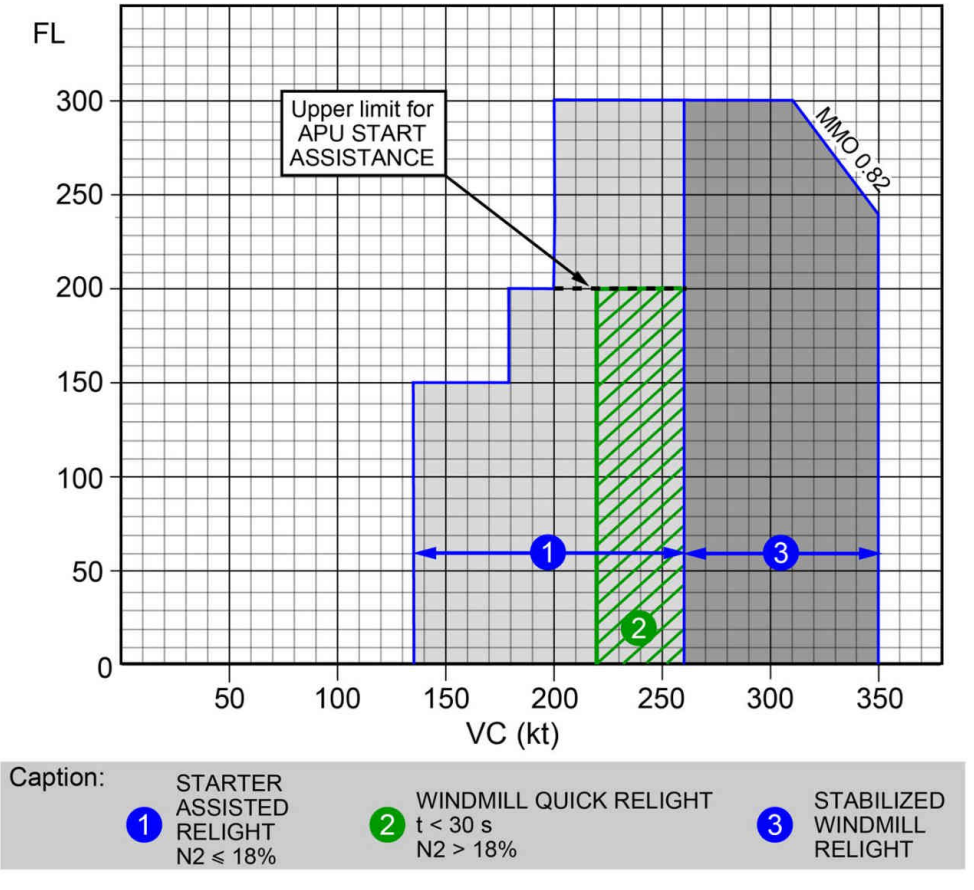
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



Caption:

1 STARTER ASSISTED RELIGHT N2 ≤ 18%

2 WINDMILL QUICK RELIGHT t < 30 s N2 > 18%

3 STABILIZED WINDMILL RELIGHT

ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: 1. *High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*
2. *High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.*

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

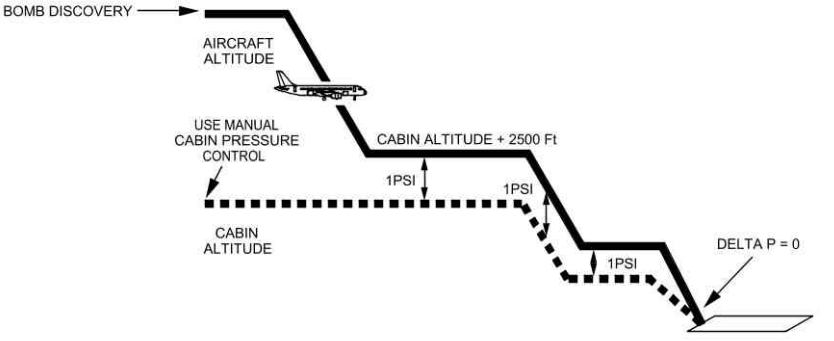
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON
    COMMERCIAL.....OFF

  FLAPS (fuel permitting).....AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL.....AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

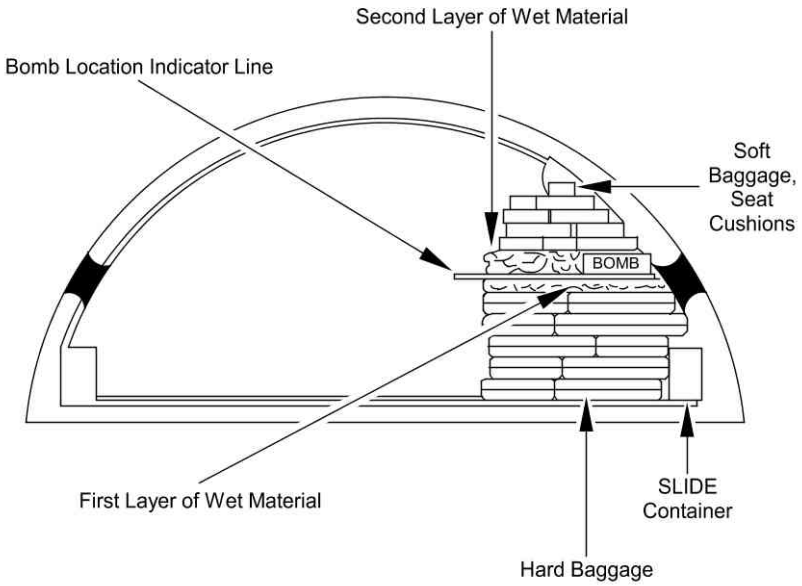
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR..... OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever..... DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**On ground, or in flight:** - Pull theC/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and M06 on 121VU. - Wait 10 s, then: - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁ , P14 ◁ . - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
25	Flickering or total loss of the video camera display (on the SD) accompanied by the ″VIDEO NOT AVAIL″ message.	CDSS	**On ground, or in flight:** - Set the VIDEO rotary selector to OFF, on the center pedestal VIDEO panel - Set the COCKPIT DOOR VIDEO pb-sw to OFF, on the overhead panel - Wait 2 min, then - Set the COCKPIT DOOR VIDEO pb-sw back on, on the overhead panel - Wait 15 s, then - Set the VIDEO rotary selector to ″CKPT ENTRY″, on the center pedestal VIDEO panel.
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 5 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1 / 2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
6	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
7 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note: The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note: In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320E..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320E	1/2	1	**20 Sep 2012 : Modification of content of the element 20803158.9001001**
			25 Sep 2012 : Modification of content of the element 20803158.9001001

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

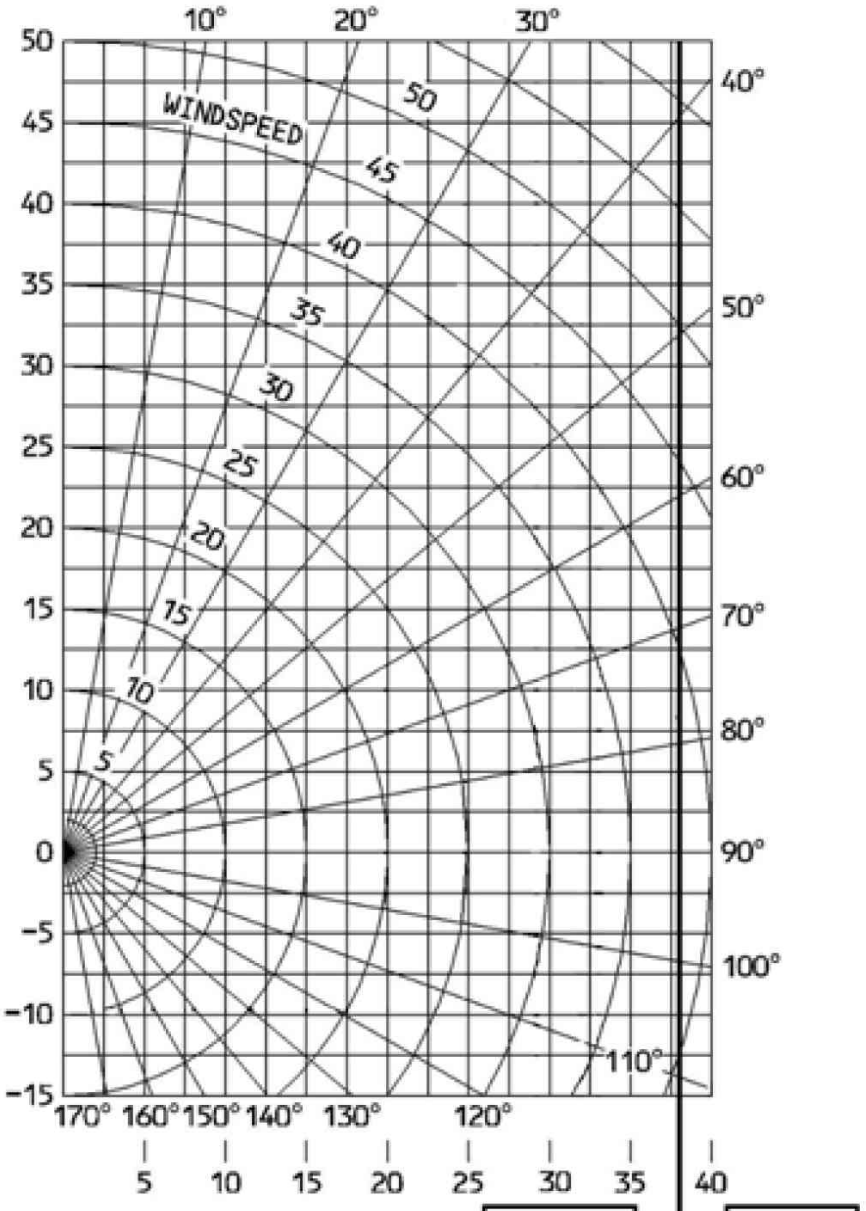
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320E

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	ONE BRK RELEASED		BRK02
	TWO BRK RELEASED		BRK03
	ALTN L(R) RELEASED (IF NORM BRK FAULT)		BRK04
	ALTN L(R) RELEASED (IF G SYS LO PR)		BRK05
	NORM BRK FAULT		BRK06
	NORM + ALTN FAULT		BRK07
NAV	IR 1+2+3 FAULT		NAV01
	DUAL IR FAULT/DUAL ADR FAULT		NAV02
	ALL ADR OFF		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

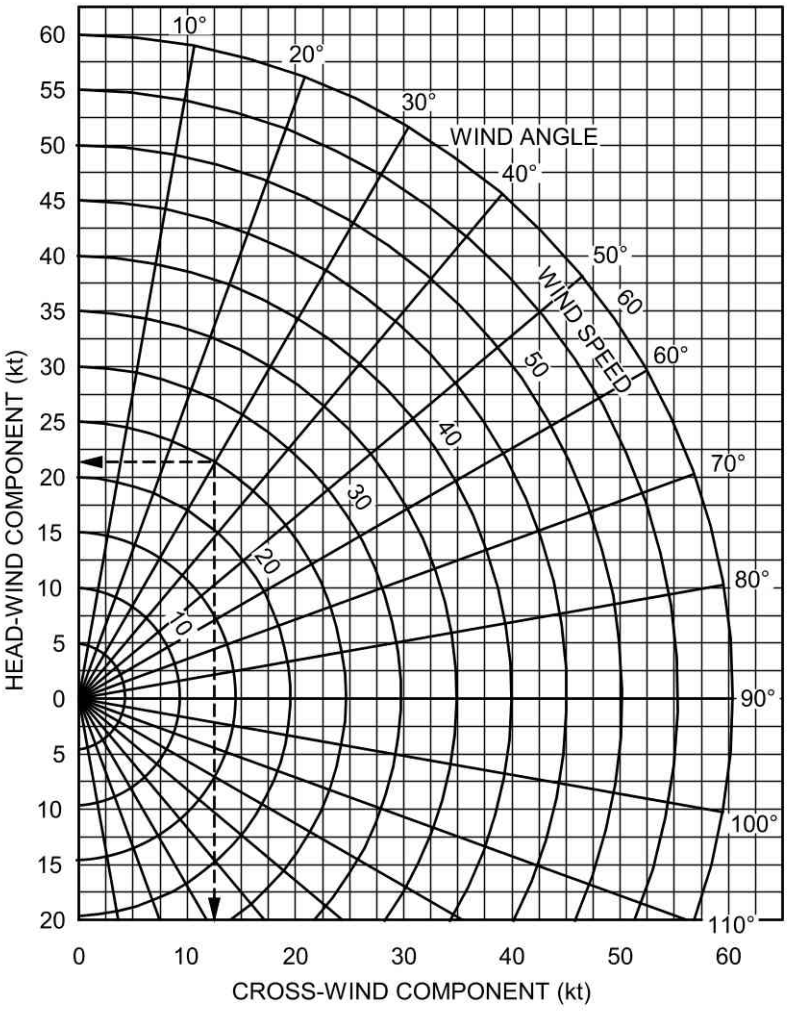
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
ONE BRK RELEASED	FULL	0	**1 260**	- 10	+ 50	+ 90	+ 50	+ 140	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 60	+ 90	+ 60	+ 150	+ 40	+ 40	- 40
TWO BRK RELEASED	FULL	0	**1 540**	- 20	+ 60	+ 100	+ 70	+ 180	+ 60	+ 60	- 60
	3	6	**1 730**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 70	- 70
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 200**	- 30	+ 100	+ 110	+ 110	+ 280	+ 80	+ 170	- 140
	3	6	**2 510**	- 40	+ 120	+ 130	+ 120	+ 310	+ 90	+ 220	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 300**	- 30	+ 110	+ 120	+ 110	+ 300	+ 80	+ 190	- 180
	3	6	**2 620**	- 30	+ 130	+ 150	+ 130	+ 320	+ 100	+ 240	- 230
NORM BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30
NORM + ALTN FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
ONE BRK RELEASED	FULL	0	**1 590**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 70	- 70
	3	6	**1 790**	- 20	+ 60	+ 140	+ 100	+ 260	+ 90	+ 90	- 90
TWO BRK RELEASED	FULL	0	**1 880**	- 20	+ 70	+ 130	+ 110	+ 290	+ 80	+ 110	- 120
	3	6	**2 150**	- 30	+ 80	+ 150	+ 130	+ 330	+ 100	+ 140	- 150
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 30	+ 90	+ 120	+ 120	+ 320	+ 80	+ 180	- 140
	3	6	**2 530**	- 40	+ 110	+ 150	+ 140	+ 340	+ 110	+ 230	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	- 30	+ 100	+ 150	+ 130	+ 350	+ 100	+ 220	- 180
	3	6	**2 700**	- 40	+ 120	+ 180	+ 160	+ 380	+ 120	+ 280	- 230
NORM BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80
NORM + ALTN FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
ONE BRK RELEASED	FULL	0	**1 860**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 110	+ 90	+ 230	+ 80	+ 120	- 150
TWO BRK RELEASED	FULL	0	**2 220**	- 20	+ 50	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 510**	- 30	+ 60	+ 130	+ 120	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 20	+ 100	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 530**	- 30	+ 110	+ 130	+ 130	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 440**	- 30	+ 80	+ 130	+ 120	+ 310	+ 90	+ 230	- 220
	3	6	**2 740**	- 30	+ 100	+ 160	+ 140	+ 330	+ 110	+ 270	- 280
NORM BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
NORM + ALTN FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
ONE BRK RELEASED	FULL	0	**2 060**	- 20	+ 50	+ 110	+ 90	+ 260	+ 70	+ 140	- 150
	3	6	**2 310**	- 20	+ 50	+ 120	+ 110	+ 270	+ 90	+ 170	- 190
TWO BRK RELEASED	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 130	+ 330	+ 90	+ 240	- 220
	3	6	**2 790**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 300	- 280
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 120	+ 340	+ 90	+ 240	- 210
	3	6	**2 780**	- 30	+ 70	+ 140	+ 150	+ 360	+ 110	+ 300	- 280
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 310	- 250
	3	6	**3 060**	- 30	+ 70	+ 170	+ 170	+ 390	+ 120	+ 390	- 330
NORM BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140
NORM + ALTN FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
ONE BRK RELEASED	FULL	0	**2 260**	- 30	+ 80	+ 150	+ 140	+ 380	+ 110	+ 190	- 170
	3	6	**2 650**	- 40	+ 90	+ 180	+ 180	+ 450	+ 130	+ 260	- 220
TWO BRK RELEASED	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 200	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 190	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 900**	- 40	+ 100	+ 190	+ 200	+ 500	+ 140	+ 390	- 280
	3	6	**3 440**	- 50	+ 130	+ 230	+ 270	+ 600	+ 180	+ 550	- 390
NORM BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170
NORM + ALTN FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
ONE BRK RELEASED	FULL	0	**3 330**	- 40	+ 80	+ 150	+ 240	+ 600	+ 140	+ 830	- 380
	3	6	**3 930**	- 50	+ 90	+ 190	+ 300	+ 650	+ 170	+ 1 090	- 510
TWO BRK RELEASED	FULL	0	**3 750**	- 50	+ 30	+ 190	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 230	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**3 750**	- 50	+ 30	+ 180	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 220	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**4 170**	- 50	+ 30	+ 210	+ 500	+ 870	+ 210	+ 2 060	- 320
	3	6	**5 010**	- 60	+ 30	+ 250	+ 630	+ 950	+ 250	+ 2 780	- 520
NORM BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420
NORM + ALTN FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
ALL ADR OFF	3	N/A	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
ALL ADR OFF	3	N/A	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
ALL ADR OFF	3	N/A	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
ALL ADR OFF	3	N/A	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
ALL ADR OFF	3	N/A	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
ALL ADR OFF	3	N/A	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

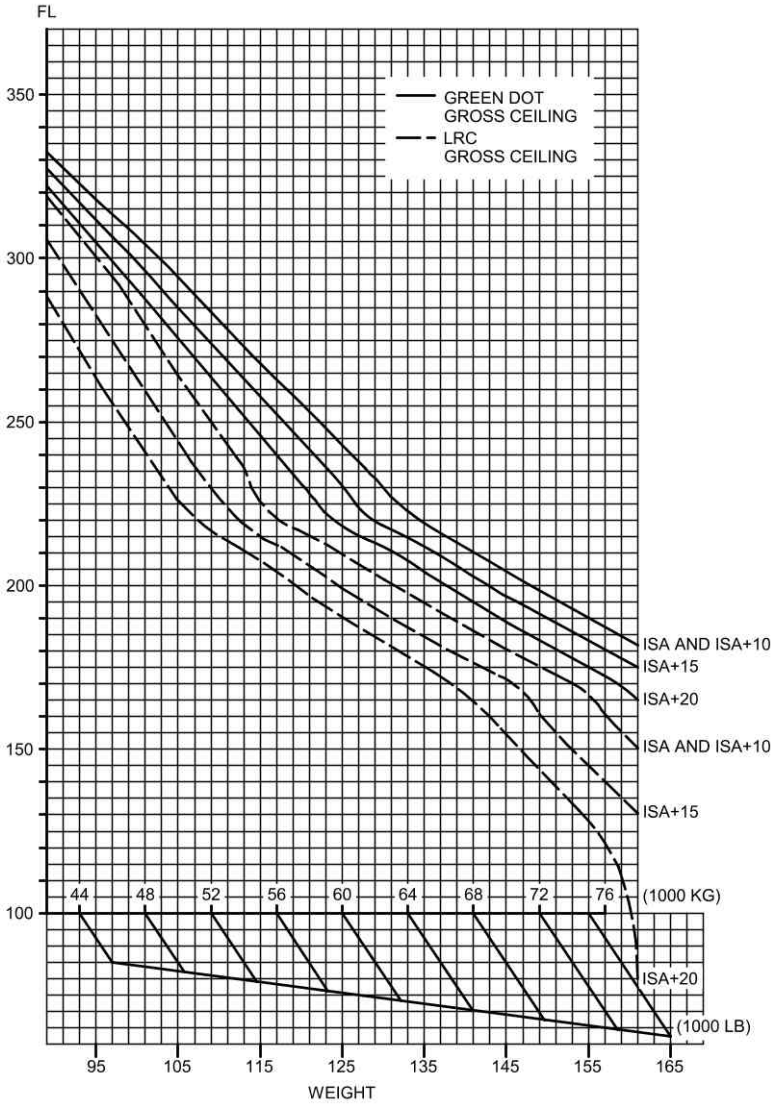
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) **TIME (MIN)**
INITIAL SPEED (KT) **FUEL (1000KG)**
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL						
	250	**290**	**310**	**330**	**350**	**370**	**390**
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

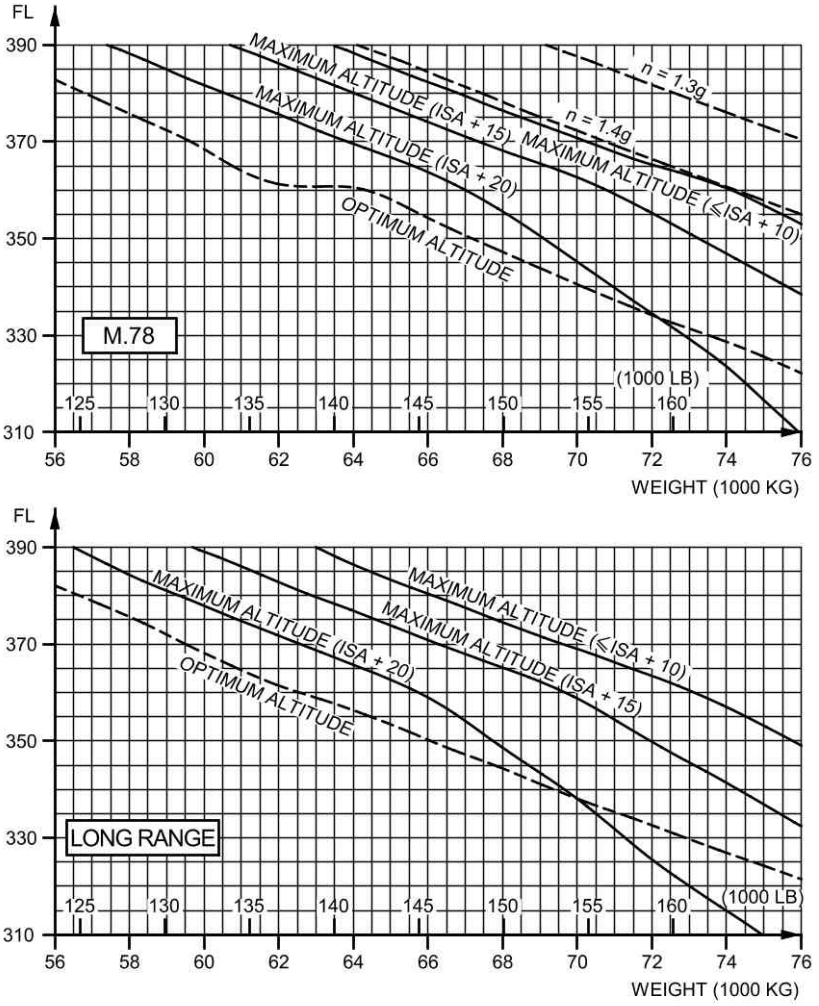
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

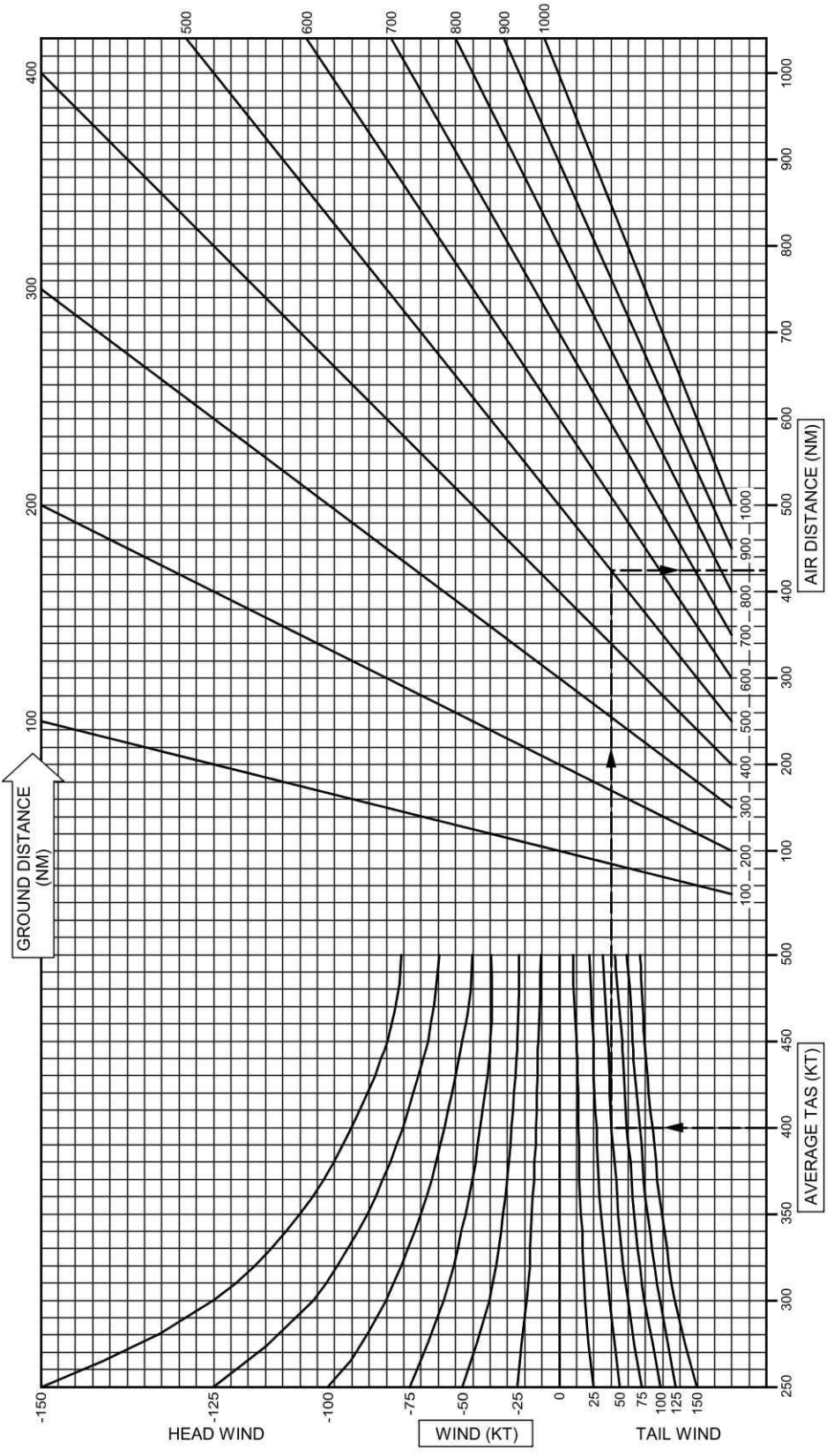
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35

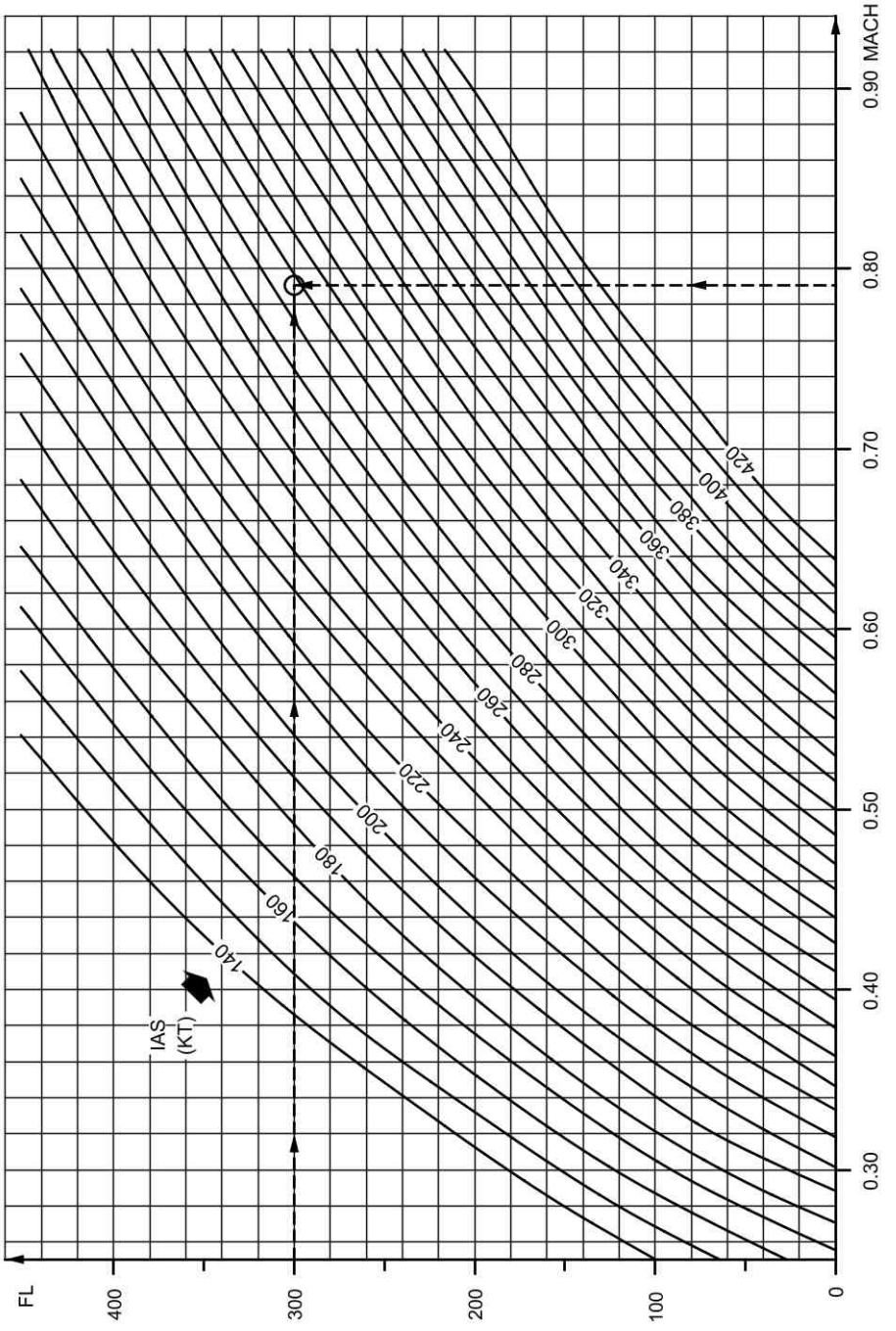
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = – 1.5 %	△FUEL = + 3 %	△FUEL = + 6 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

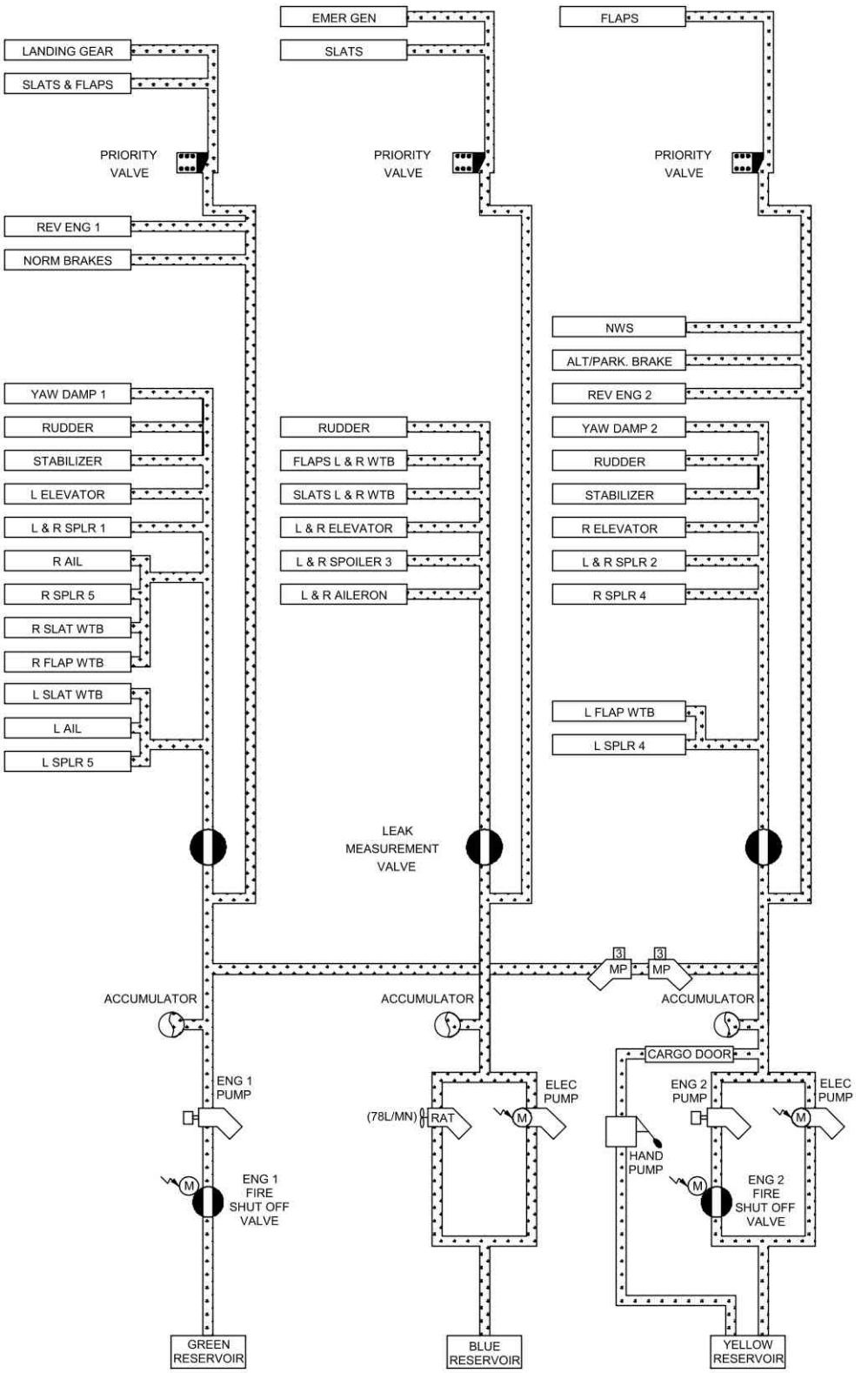
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

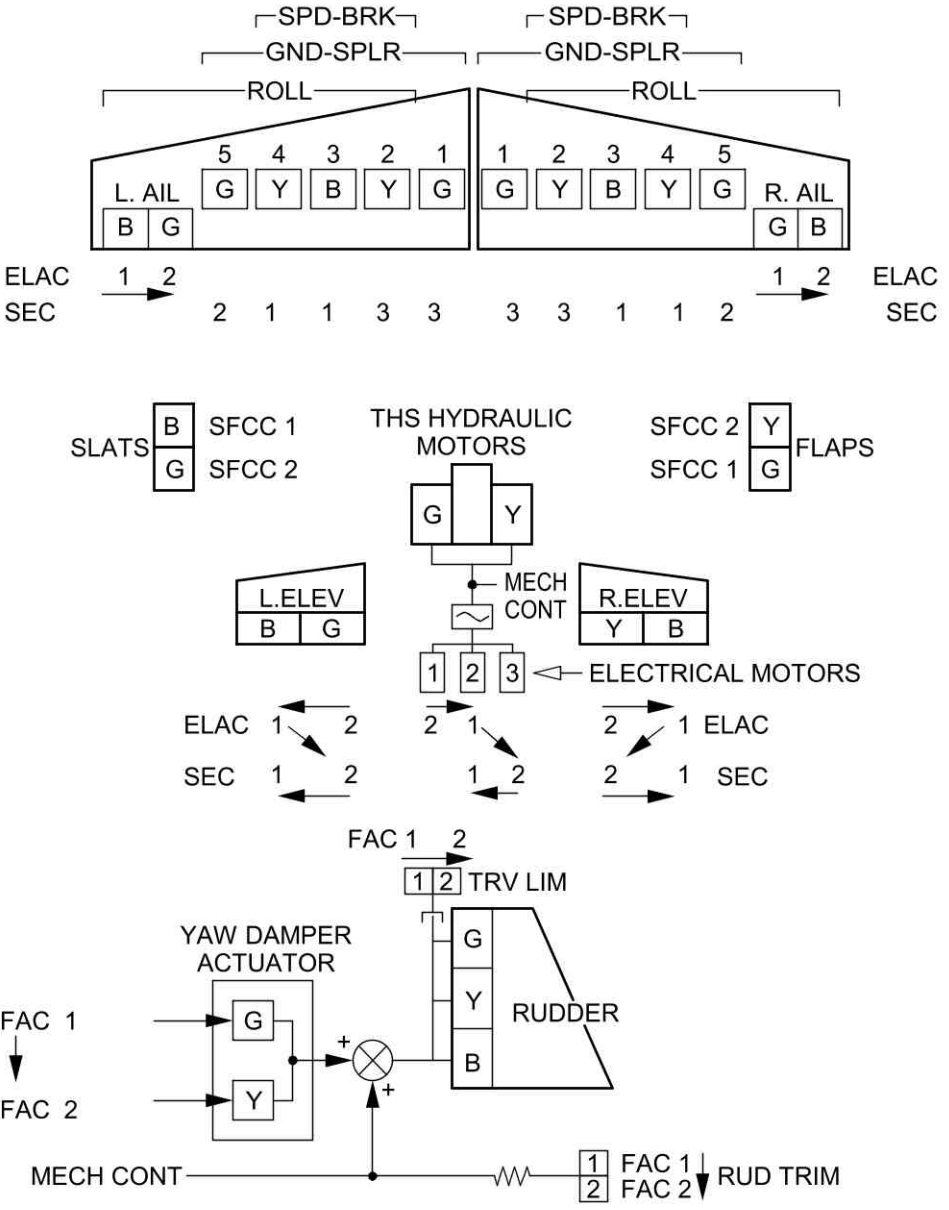
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
■ L/G GEAR NOT DOWNLOCKED ■..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSO**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSO**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSO**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSO**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSO**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSO**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSO**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSO**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSO**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSO**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSO**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSO**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	
– SPD BRK .....DO NOT USE	INOP SYS
LDG DIST PROC.....APPLY	SPLR(affected)
	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSO**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSO**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSP

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSP**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HSP**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HSP**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSP**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSP**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSP**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSP**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSP** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
E	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013738.0001001	03 AUG 12
	Criteria: K10463 **Applicable to: B-HSP** *Impacted DU: NONE*			
N	ABN-80	**Computer Reset Table- 25 - Equipment**	00013739.0001001	03 AUG 12
	Criteria: K11047 **Applicable to: B-HSP** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit (TDU) provides Operators with the CDSS reset procedure in case of flickering or total loss of the video camera on the ECAM System Display (SD), accompanied by the VIDEO NOT AVAIL message.*			
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSP** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	4247	HDA 0058	B-HSP	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P9355		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - REMOVE WXR TRANSCEIVER COLLINS -623 AND DEACTIVATE PWS (ANTI-MOD 32740/26560)
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	P9907		07 APR 11	INDICATING RECORDING SYSTEM - FLIGHT WARNING COMPUTER (FWC)- INSTALL FWC STANDARD H2-F4
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K9458		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL IMPROVED AIR COND. SYSTEM CONTROLLER PN 1803B0000-01
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P10267		07 APR 11	NAVIGATION - RADIO MAGNETIC INFORMATION SWITCHING AND INDICATING - RE-INSTALL THALES DDRMI VOR/DME INDICATORS
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	K6443		07 APR 11	AIR CONDITIONING-AIR COOLING- INSTALL A NEW ECS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04
ASYMMETRIC BRAKING..... 32.05

ABN-34 Navigation

[8] ■ ALL ADR OFF ■..... 34.02
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[9] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[10] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[11] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07

■ Stall Warning at Lift-Off ■ 80.07
TAILSTRIKE 80.08
VOLCANIC ASH ENCOUNTER 80.09
■ WINDSHEAR AHEAD ■ 80.10
■ WINDSHEAR ■ 80.10A
WINDSHIELD/WINDOW ARCING 80.11
WINDSHIELD/WINDOW CRACKED 80.12
ECAM Advisory Conditions 80.13
Tripped C/B Re-Engagement 80.14
Computer Reset 80.15
12 Computer Reset Table 80.16
■ EMERGENCY EVACUATION ■ 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ALL ADR OFF	2/4	8	Documentation update: Deletion of the "00010842.0042001 ALL ADR OFF" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	10	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	11	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	12	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-32 ASYMMETRIC BRAKING	32.05	2	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 ALL ADR OFF	34.02	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.

Localization Title	Page	ID	Reason
ABN-80 Computer Reset Table- 25 - Equipment	80.16D	5	Documentation update: Addition of "Computer Reset Table- 25 - Equipment" documentary unit
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	6	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	7	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	ABCU	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.
(b) Crew oxygen valve inoperative.
(c) Lost, when speed is below 50 kt.
(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2..... OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1..... OFF

  - **If smoke continues:**

    PACK 1..... ON
    PACK 2..... OFF

    - **If smoke still continues:**

      PACK 2..... ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL..... CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL..... OFF
    SMOKE DISSIPATION..... CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL..... CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK PUMP 1+2..... OFF

Each engine is fed via its associated inner tank only.

INNER TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD

The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

● If leak continues (after engine shutdown):

The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

2 Apply brake progressively on the available side. Counter swing with the rudder. Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

Intentionally left blank

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	*The altitude displayed on the PFD is a GPS altitude.*

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.

Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

1

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

  LDG GRVTY EXTN.....DOWN

CAUTION	*All gear doors remain open.*

- **WHEN L/G DOWNLOCKED:**

  L/G lever.....DOWN

  GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

  MAN V/S CTL.....FULL UP

CAUTION	Check that the outflow valve is fully open and that cabin altitude is at airfield elevation before opening the doors.

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET

ALL ADR OFF (Cont'd)

F/CTL PROT
ADR 1+2+3
RUD TRV LIM
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR ◁✠

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

To monitor speed, refer to IRS Ground Speed or GPS Ground Speed variations.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

■ **If at least one ADR is reliable:**

Faulty ADR(s).....OFF

REMAINING AIR DATA.....CONFIRM

Alternates sources may be used to evaluate the air data:

- *GPS altitude.*
- *GPS and IRS ground speeds, taking into account altitude and wind effect.*

■ **If affected ADR(s) cannot be identified, or if all ADRs are affected:**

■ **When above FL 250:**

ONE ADR.....KEEP ON

TWO ADRs..... OFF

This prevents the flight control laws from using two coherent but unreliable ADR data.

For flight continuation, *Refer to Climb, Cruise and Descent tables.*

■ **When below FL 250, if speed still unreliable:**

ALL ADRs P/B..... OFF

All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

SPD..... FLY THE GREEN

NAV ADR 1+2+3 FAULT

4 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

5 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

6 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 250	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
COMMERCIAL.....OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

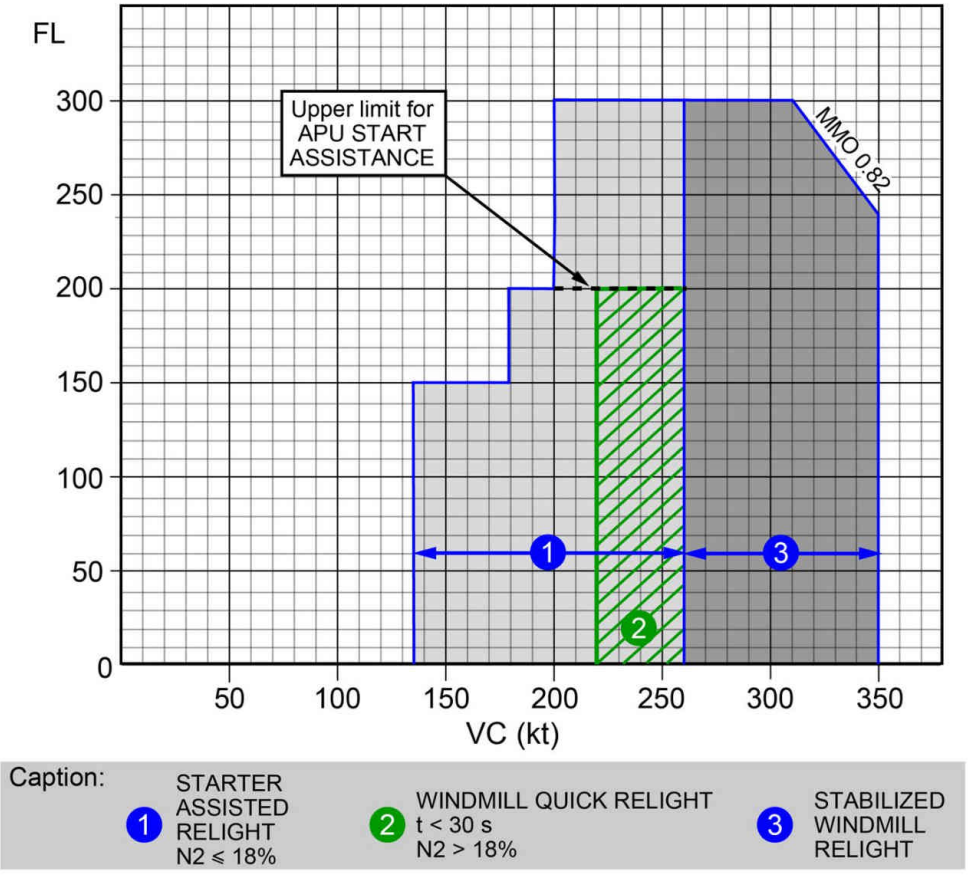
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time)..... INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

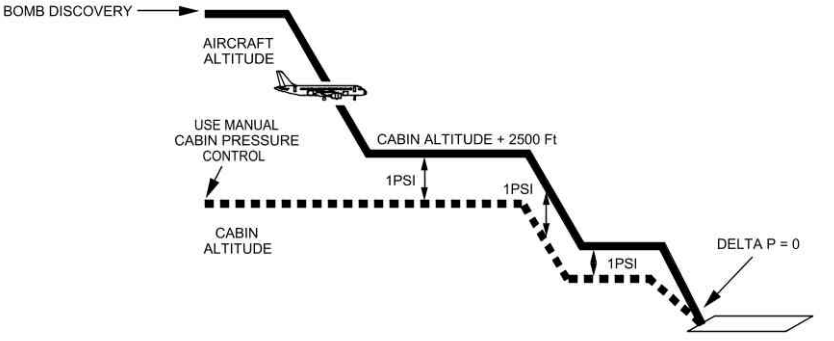
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

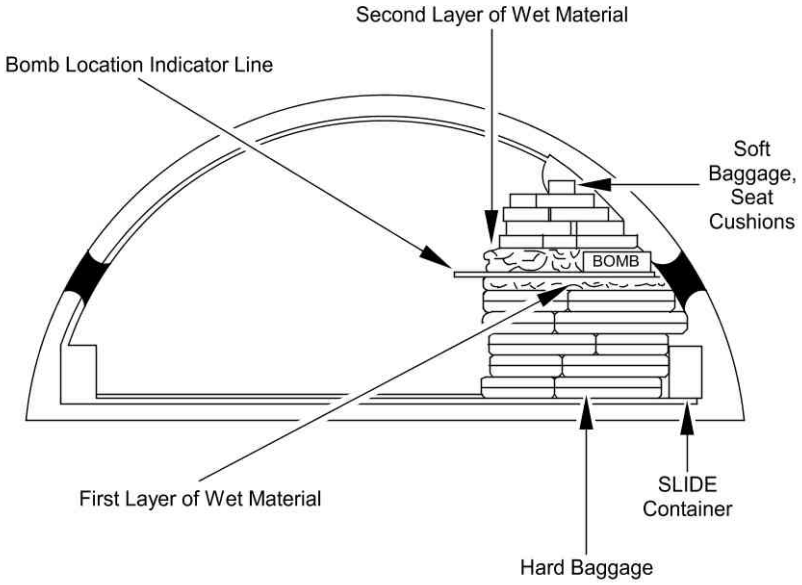
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⋘ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**On ground, or in flight:** - Pull theC/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and M06 on 121VU. - Wait 10 s, then: - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁ , P14 ◁ . - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
25	Flickering or total loss of the video camera display (on the SD) accompanied by the ″VIDEO NOT AVAIL″ message.	CDSS	**On ground, or in flight:** - Set the VIDEO rotary selector to OFF, on the center pedestal VIDEO panel - Set the COCKPIT DOOR VIDEO pb-sw to OFF, on the overhead panel - Wait 2 min, then - Set the COCKPIT DOOR VIDEO pb-sw back on, on the overhead panel - Wait 15 s, then - Set the VIDEO rotary selector to ″CKPT ENTRY″, on the center pedestal VIDEO panel.
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 5 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1 / 2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
6	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
7 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note: The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note: In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320E..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320E	1/2	1	**20 Sep 2012 : Modification of content of the element 20803158.9001001**
			25 Sep 2012 : Modification of content of the element 20803158.9001001

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

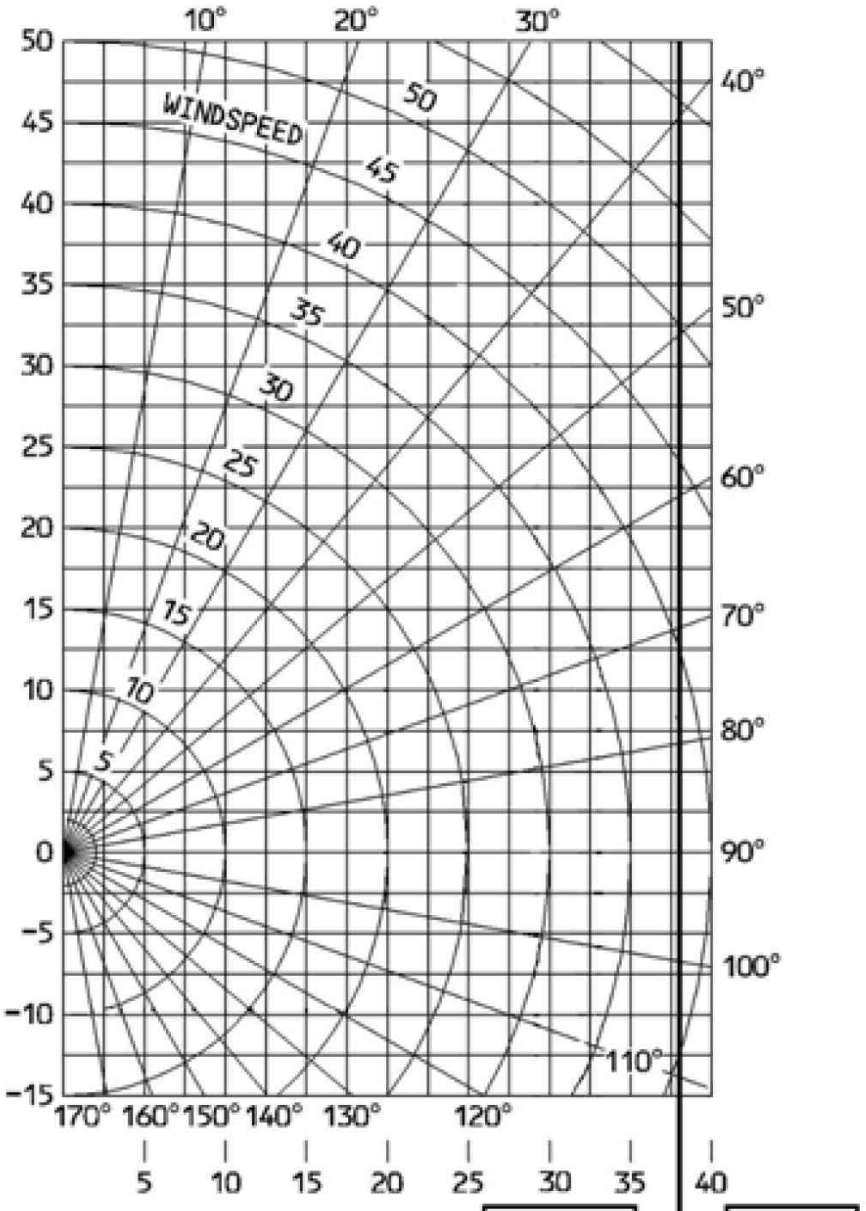
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320E

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	ONE BRK RELEASED		BRK02
	TWO BRK RELEASED		BRK03
	ALTN L(R) RELEASED (IF NORM BRK FAULT)		BRK04
	ALTN L(R) RELEASED (IF G SYS LO PR)		BRK05
	NORM BRK FAULT		BRK06
	NORM + ALTN FAULT		BRK07
NAV	IR 1+2+3 FAULT		NAV01
	DUAL IR FAULT/DUAL ADR FAULT		NAV02
	ALL ADR OFF		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT) CG ≥ 25 %					
W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

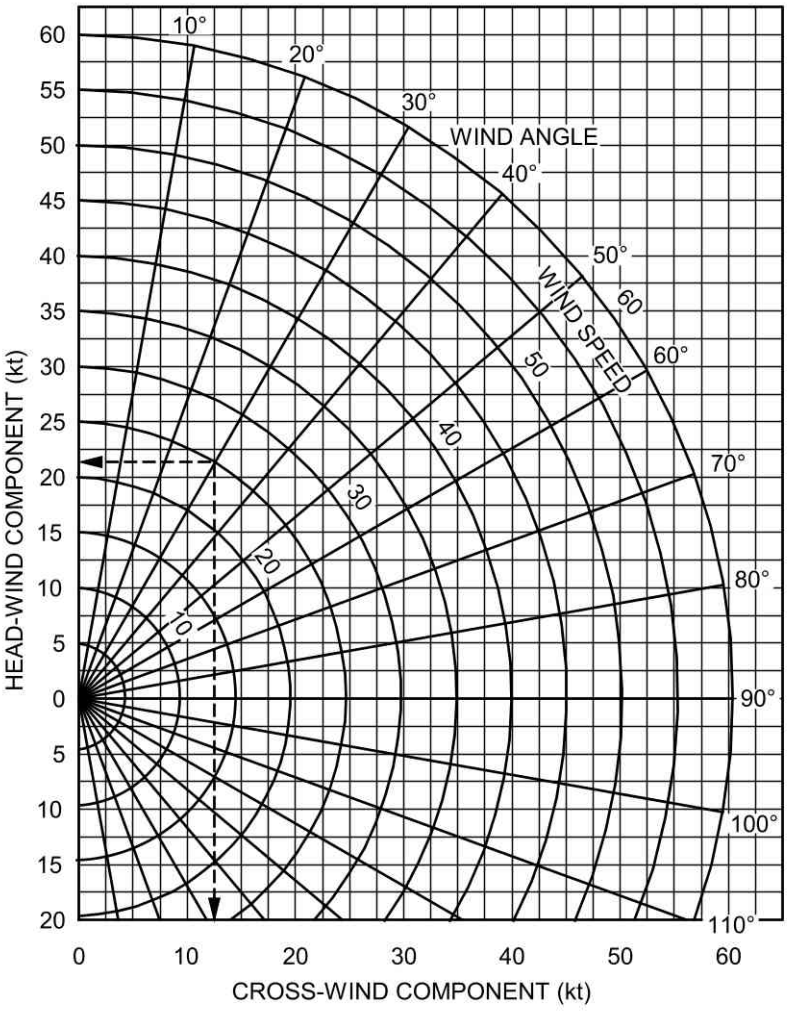
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
ONE BRK RELEASED	FULL	0	**1 260**	- 10	+ 50	+ 90	+ 50	+ 140	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 60	+ 90	+ 60	+ 150	+ 40	+ 40	- 40
TWO BRK RELEASED	FULL	0	**1 540**	- 20	+ 60	+ 100	+ 70	+ 180	+ 60	+ 60	- 60
	3	6	**1 730**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 70	- 70
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 200**	- 30	+ 100	+ 110	+ 110	+ 280	+ 80	+ 170	- 140
	3	6	**2 510**	- 40	+ 120	+ 130	+ 120	+ 310	+ 90	+ 220	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 300**	- 30	+ 110	+ 120	+ 110	+ 300	+ 80	+ 190	- 180
	3	6	**2 620**	- 30	+ 130	+ 150	+ 130	+ 320	+ 100	+ 240	- 230
NORM BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30
NORM + ALTN FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
ONE BRK RELEASED	FULL	0	**1 590**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 70	- 70
	3	6	**1 790**	- 20	+ 60	+ 140	+ 100	+ 260	+ 90	+ 90	- 90
TWO BRK RELEASED	FULL	0	**1 880**	- 20	+ 70	+ 130	+ 110	+ 290	+ 80	+ 110	- 120
	3	6	**2 150**	- 30	+ 80	+ 150	+ 130	+ 330	+ 100	+ 140	- 150
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 30	+ 90	+ 120	+ 120	+ 320	+ 80	+ 180	- 140
	3	6	**2 530**	- 40	+ 110	+ 150	+ 140	+ 340	+ 110	+ 230	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	- 30	+ 100	+ 150	+ 130	+ 350	+ 100	+ 220	- 180
	3	6	**2 700**	- 40	+ 120	+ 180	+ 160	+ 380	+ 120	+ 280	- 230
NORM BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80
NORM + ALTN FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
ONE BRK RELEASED	FULL	0	**1 860**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 110	+ 90	+ 230	+ 80	+ 120	- 150
TWO BRK RELEASED	FULL	0	**2 220**	- 20	+ 50	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 510**	- 30	+ 60	+ 130	+ 120	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 20	+ 100	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 530**	- 30	+ 110	+ 130	+ 130	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 440**	- 30	+ 80	+ 130	+ 120	+ 310	+ 90	+ 230	- 220
	3	6	**2 740**	- 30	+ 100	+ 160	+ 140	+ 330	+ 110	+ 270	- 280
NORM BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
NORM + ALTN FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
ONE BRK RELEASED	FULL	0	**2 060**	- 20	+ 50	+ 110	+ 90	+ 260	+ 70	+ 140	- 150
	3	6	**2 310**	- 20	+ 50	+ 120	+ 110	+ 270	+ 90	+ 170	- 190
TWO BRK RELEASED	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 130	+ 330	+ 90	+ 240	- 220
	3	6	**2 790**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 300	- 280
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 120	+ 340	+ 90	+ 240	- 210
	3	6	**2 780**	- 30	+ 70	+ 140	+ 150	+ 360	+ 110	+ 300	- 280
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 310	- 250
	3	6	**3 060**	- 30	+ 70	+ 170	+ 170	+ 390	+ 120	+ 390	- 330
NORM BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140
NORM + ALTN FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
ONE BRK RELEASED	FULL	0	**2 260**	- 30	+ 80	+ 150	+ 140	+ 380	+ 110	+ 190	- 170
	3	6	**2 650**	- 40	+ 90	+ 180	+ 180	+ 450	+ 130	+ 260	- 220
TWO BRK RELEASED	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 200	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 190	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 900**	- 40	+ 100	+ 190	+ 200	+ 500	+ 140	+ 390	- 280
	3	6	**3 440**	- 50	+ 130	+ 230	+ 270	+ 600	+ 180	+ 550	- 390
NORM BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170
NORM + ALTN FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
ONE BRK RELEASED	FULL	0	**3 330**	- 40	+ 80	+ 150	+ 240	+ 600	+ 140	+ 830	- 380
	3	6	**3 930**	- 50	+ 90	+ 190	+ 300	+ 650	+ 170	+ 1 090	- 510
TWO BRK RELEASED	FULL	0	**3 750**	- 50	+ 30	+ 190	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 230	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**3 750**	- 50	+ 30	+ 180	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 220	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**4 170**	- 50	+ 30	+ 210	+ 500	+ 870	+ 210	+ 2 060	- 320
	3	6	**5 010**	- 60	+ 30	+ 250	+ 630	+ 950	+ 250	+ 2 780	- 520
NORM BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420
NORM + ALTN FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
ALL ADR OFF	3	N/A	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
ALL ADR OFF	3	N/A	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
ALL ADR OFF	3	N/A	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
ALL ADR OFF	3	N/A	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
ALL ADR OFF	3	N/A	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
ALL ADR OFF	3	N/A	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

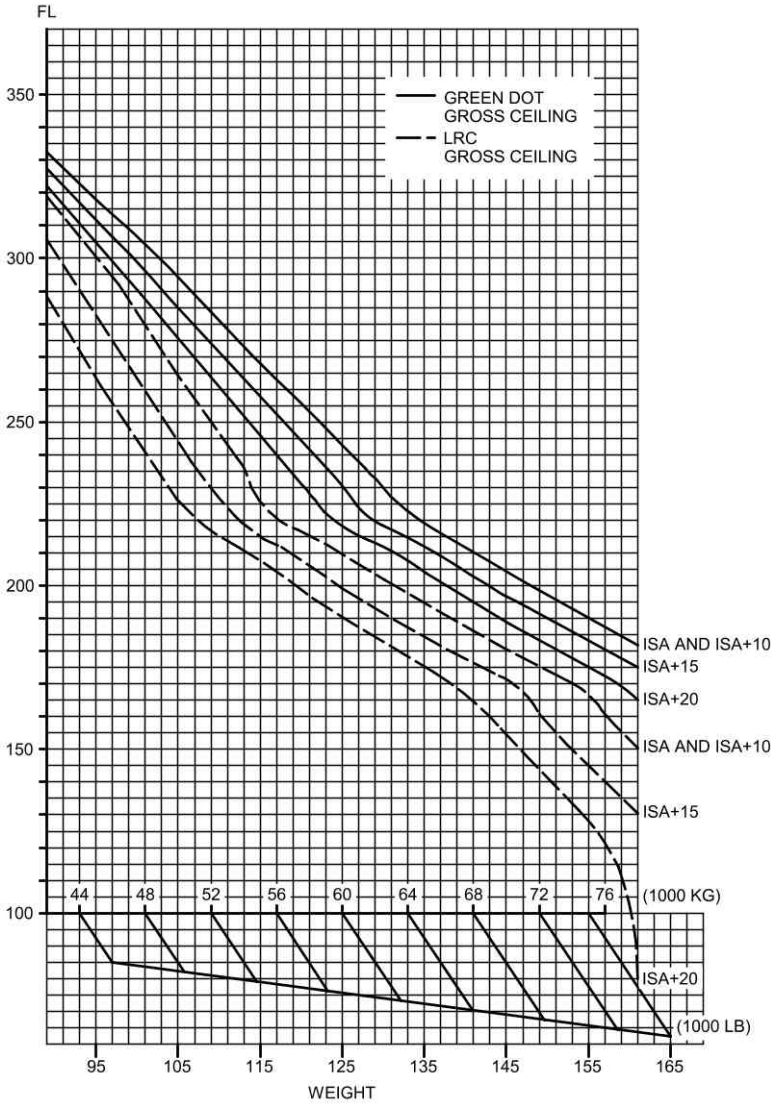
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

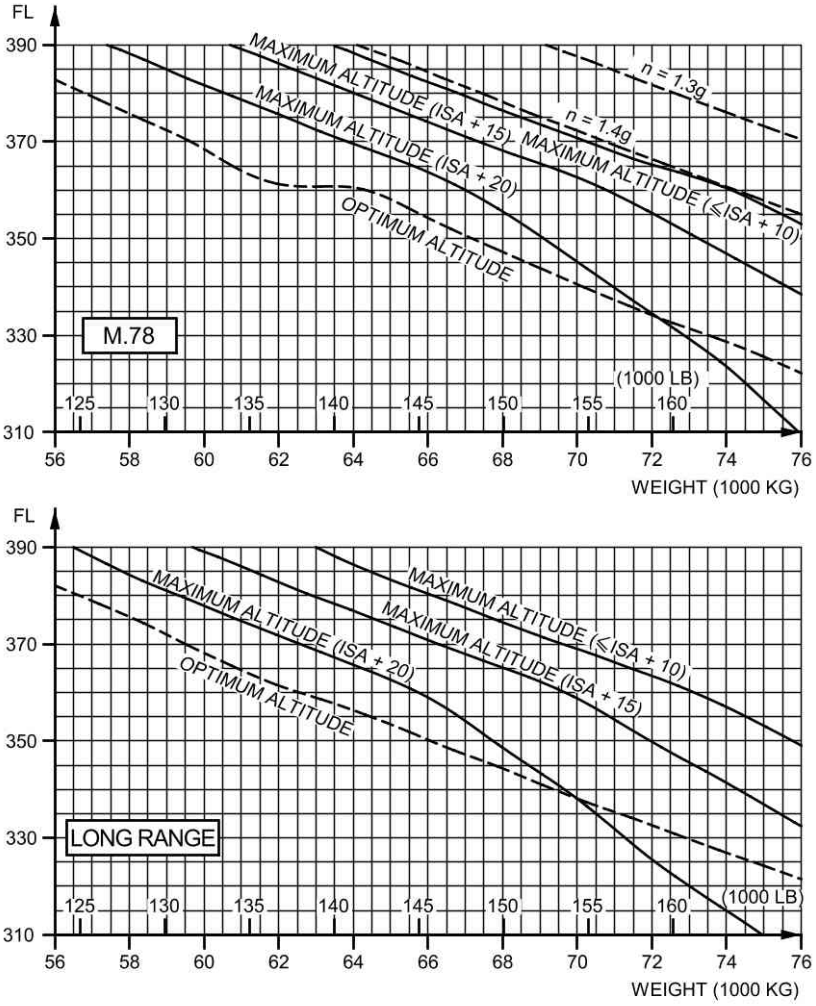
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

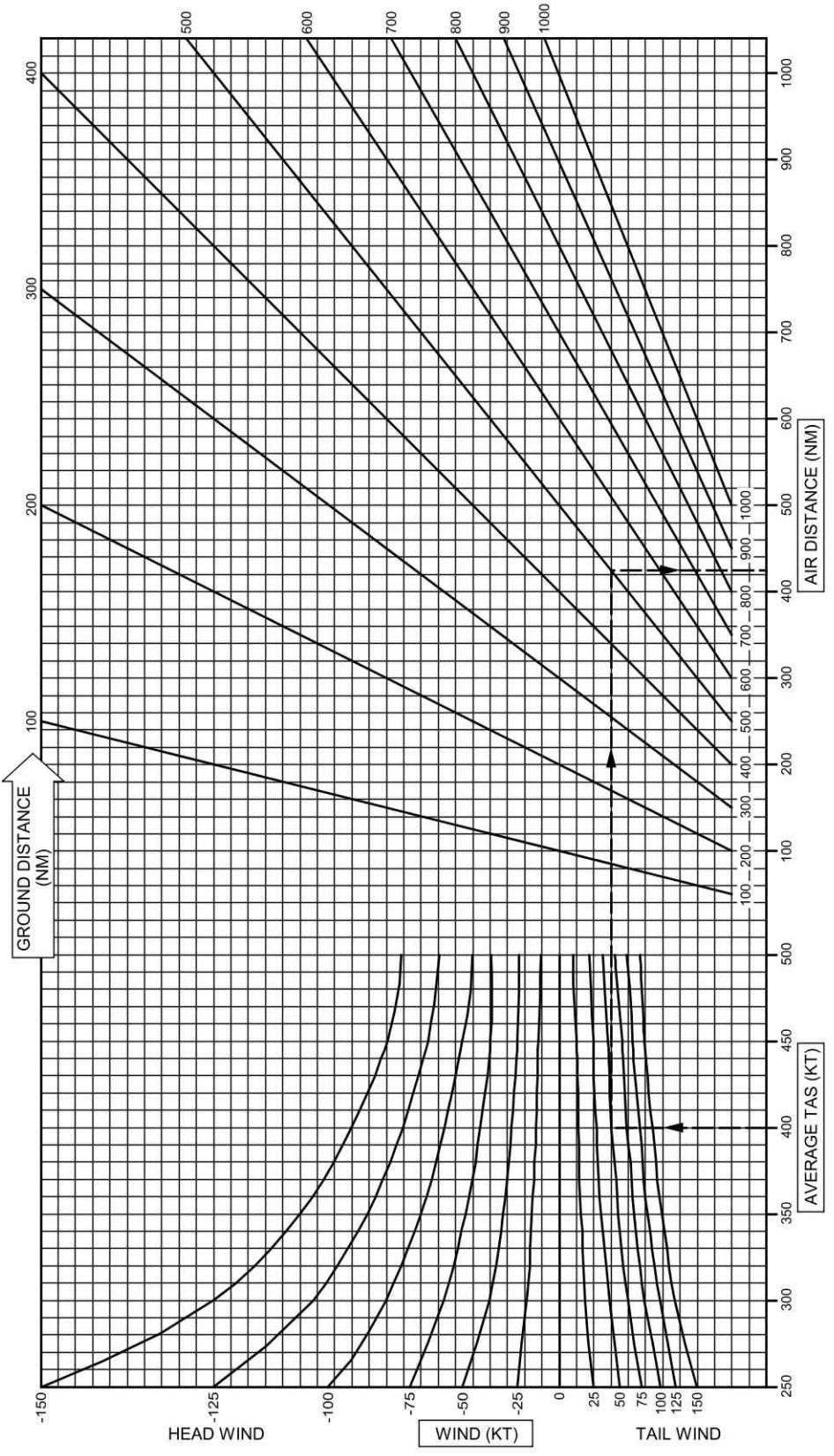
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

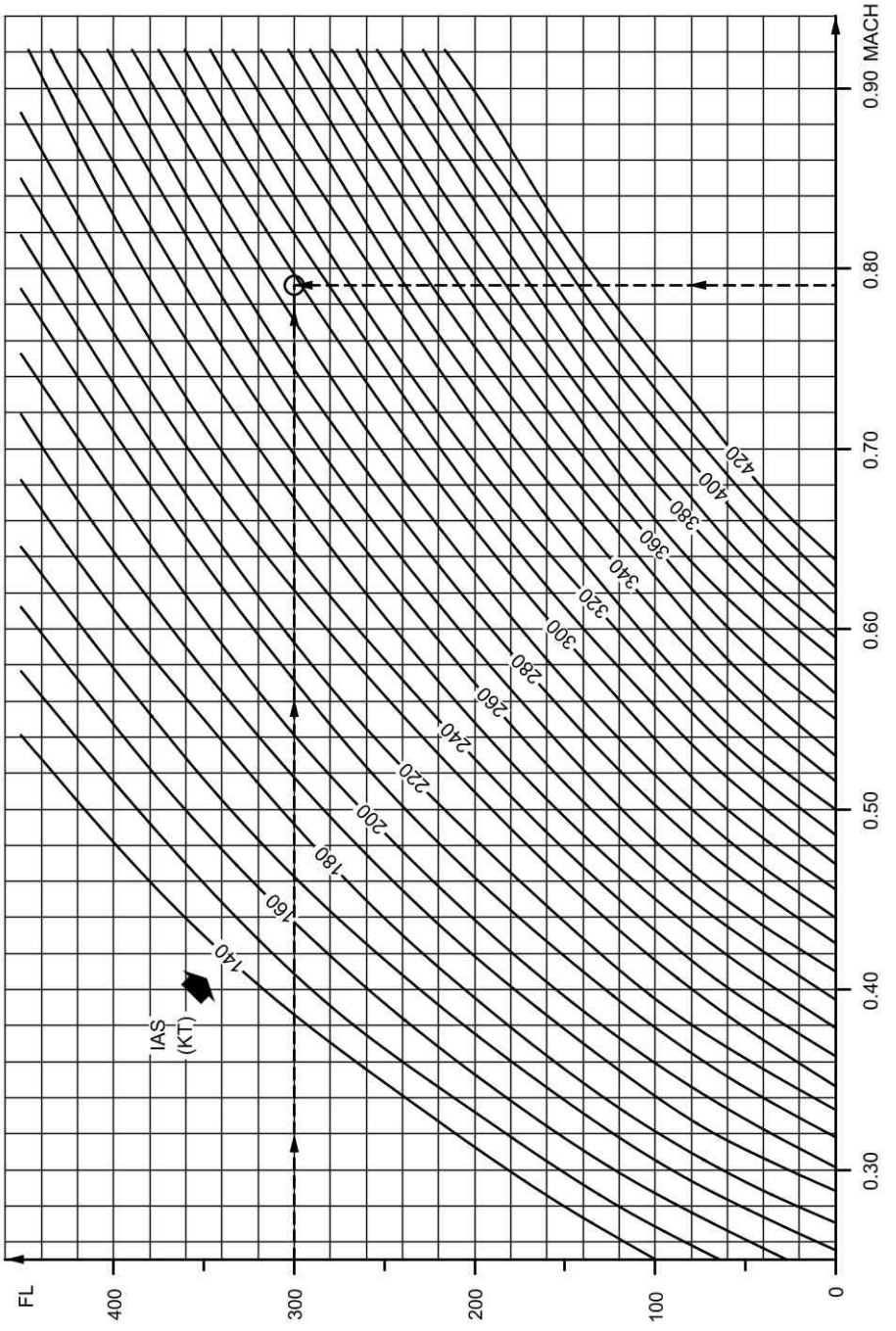
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

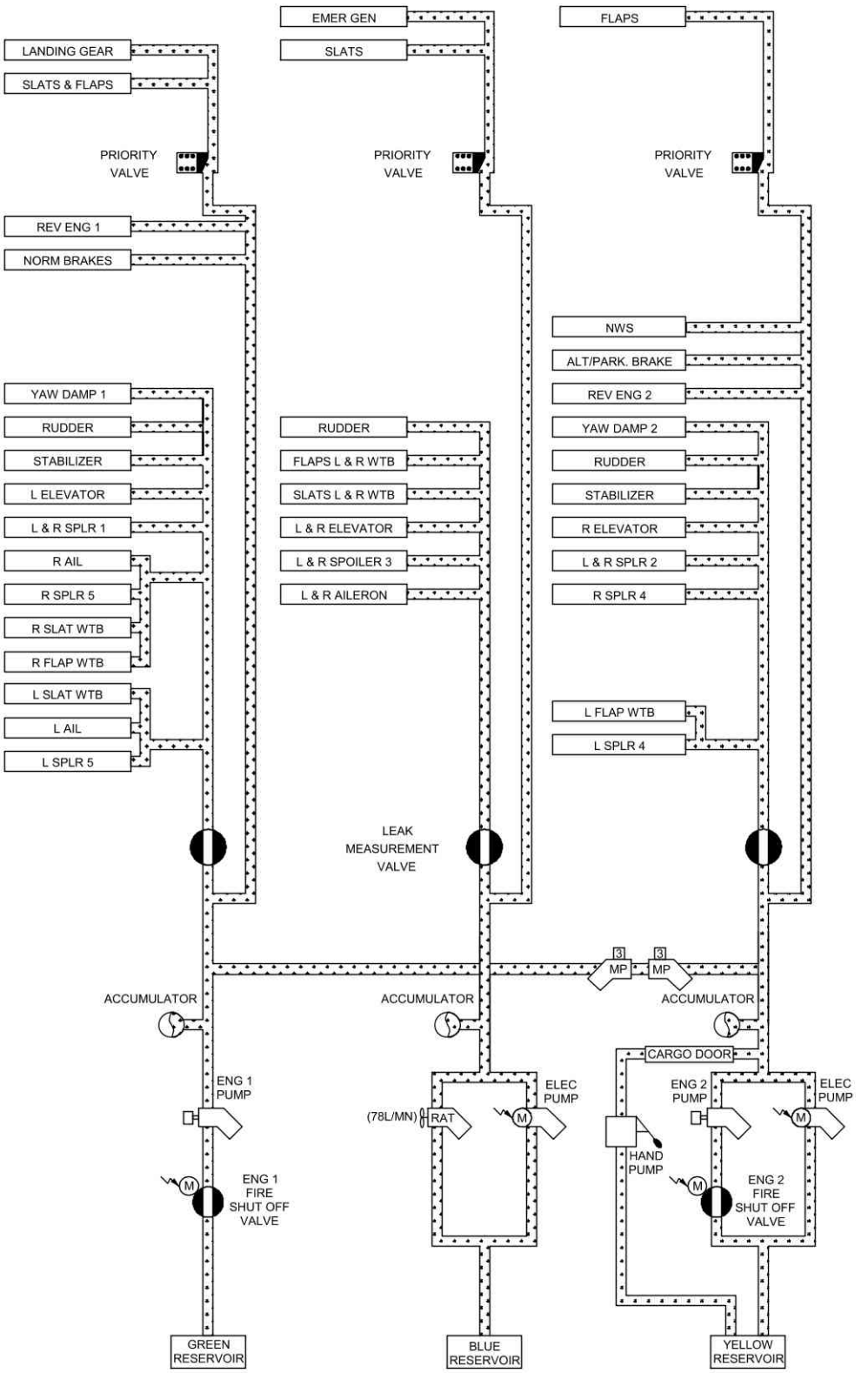
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

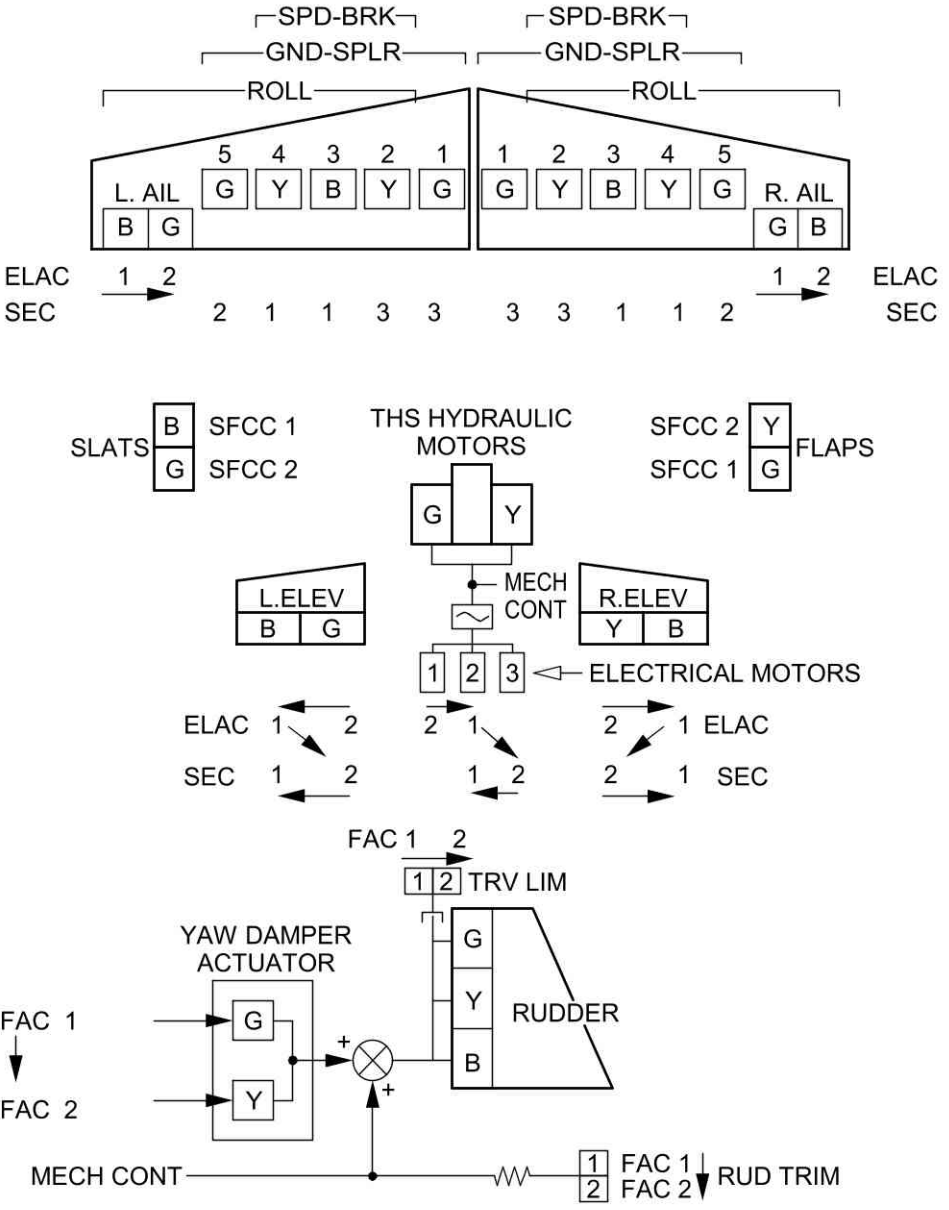
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
■ L/G GEAR NOT DOWNLOCKED ■..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSP**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HSP**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSP**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HSP**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSP**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSP**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSP**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSP**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSP**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSP**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSP**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSP**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
• if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSP**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSP**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSQ

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-41 **Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	ALL	03 AUG 12
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSQ**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSQ**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSQ**				
	OEB41 issue 1.0	W	N	03 AUG 12	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan
	Criteria: P10763 **Applicable to: B-HSQ**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSQ**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSQ**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
M	OEBPROC-41	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan	03 AUG 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSQ** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
E	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013738.0001001	03 AUG 12
	Criteria: K10463 **Applicable to: B-HSQ** *Impacted DU: NONE*			
E	ABN-80	**Computer Reset Table - 23 - Communications**	00013850.0024001	03 AUG 12
	Criteria: K12824, K12825, K3901, K8400, K9009, SA **Applicable to: B-HSQ** *Impacted DU: 00010910 Computer Reset Table - 23 - Communications*			
	Reason for issue: *CIDS Director Hardware 333B and On Board Replacement Module (OBRM) 33A are sensitive to short power supply interruptions. These power supply interruptions occur when the aircraft is supplied by external power. As a consequence, ECAM caution "COM CIDS 1+2 FAULT" or CIDS Maintenance status 'CIDS 1' or 'CIDS 2' could be spuriously triggered. In such event, the flight crew should verify that the CIDS is functioning normally by checking the PA, Cabin Interphone and Cabin lighting function. If the ECAM caution is spurious, it can be removed by resetting the CIDS when the aircraft is powered by the APU.*			
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSQ** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	5024	HDA 0060	B-HSQ	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P3112		25 NOV 11	NAVIGATION - INSTALL A TCAS II COLLINS SYSTEM
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P5613		25 NOV 11	NAVIGATION - TCAS - INSTALL COLLINS TCAS TTR921 WITH COLLINS ATC TPR901
	Applicable to: ALL			
	K4457		25 NOV 11	A.P.U.-POWER PLANT-INTRODUCE ALLIED SIGNAL APU 131-9(A)
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P12330		30 MAY 12	NAVIGATION-TRAFFIC COLLISION AVOIDANCE SYSTEM (TCAS) - INSTALL TCAS COLLINS TTR-921 CHANGE 7.1
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	K9234		25 NOV 11	EQUIPMENT/FURNISHINGS-MISC. EMERGENCY EQUIPMENT-INSTALL ELT (406AF) WITH RCP IN COCKPIT ON ENH. PROV. - ELTA
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P0160		25 NOV 11	OXYGEN - FLIGHT CREW OXYGEN - INSTALL A 115 CU/FT STEEL OXYGEN CYLINDER -
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10516		25 NOV 11	AIRBORNE AUXILIARY POWER - CONTROL AND MONITORING - INTRODUCE HONEWELL VECB WITH SOFTWARE -04
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04
ASYMMETRIC BRAKING..... 32.05

[8] ABN-34 Navigation

[9] ■ ALL ADR OFF ■..... 34.02
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[10] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[11] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[12] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07

■ Stall Warning at Lift-Off ■ 80.07
TAILSTRIKE 80.08
VOLCANIC ASH ENCOUNTER 80.09
■ WINDSHEAR AHEAD ■ 80.10
■ WINDSHEAR ■ 80.10A
WINDSHIELD/WINDOW ARCING 80.11
WINDSHIELD/WINDOW CRACKED 80.12
ECAM Advisory Conditions 80.13
Tripped C/B Re-Engagement 80.14
Computer Reset 80.15
13 Computer Reset Table 80.16
■ EMERGENCY EVACUATION ■ 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC Navigation	2/4	8	Documentation update: Deletion of the "00010841.0008001 TCAS WARNINGS" documentary unit.
ABN-PLP-TOC ALL ADR OFF	2/4	9	Documentation update: Deletion of the "00010842.0042001 ALL ADR OFF" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	10	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	11	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	12	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	13	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-32 ASYMMETRIC BRAKING	32.05	2	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 ALL ADR OFF	34.02	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 TCAS WARNINGS	34.06	2	Documentation update: Addition of "TCAS WARNINGS" documentary unit
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

Intentionally left blank

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	ABCU	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.
(b) Crew oxygen valve inoperative.
(c) Lost, when speed is below 50 kt.
(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1..... OFF

  - **If smoke continues:**

    PACK 1..... ON
    PACK 2..... OFF

    - **If smoke still continues:**

      PACK 2..... ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL..... CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL..... OFF
    SMOKE DISSIPATION..... CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL..... CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Slats \ Flaps</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR).....ON
  FUEL X FEED.....OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.
- The destination EFOB turns to amber on the F.PLN (or on the FUEL PRED) page, or
- ″DEST EFOB BELOW MIN″ appears on the MCDU scratchpad.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD
The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

FUEL LEAK (Cont'd)

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

  ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

2 Apply brake progressively on the available side. Counter swing with the rudder. Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

Intentionally left blank

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	*The altitude displayed on the PFD is a GPS altitude.*

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.

Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

1

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

  LDG GRVTY EXTN.....DOWN

CAUTION	*All gear doors remain open.*

- **WHEN L/G DOWNLOCKED:**

  L/G lever.....DOWN

  GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

  MAN V/S CTL.....FULL UP

CAUTION	Check that the outflow valve is fully open and that cabin altitude is at airfield elevation before opening the doors.

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET

ALL ADR OFF (Cont'd)

F/CTL PROT
ADR 1+2+3
RUD TRV LIM
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR ◁✻

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

2

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "LEVEL OFF" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: Resolution Advisories (RA) are inhibited below 900 ft.

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

To monitor speed, refer to IRS Ground Speed or GPS Ground Speed variations.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

■ **If at least one ADR is reliable:**

Faulty ADR(s).....OFF

REMAINING AIR DATA.....CONFIRM

Alternates sources may be used to evaluate the air data:

- *GPS altitude.*
- *GPS and IRS ground speeds, taking into account altitude and wind effect.*

■ **If affected ADR(s) cannot be identified, or if all ADRs are affected:**

■ **When above FL 250:**

ONE ADR.....KEEP ON

TWO ADRs..... OFF

This prevents the flight control laws from using two coherent but unreliable ADR data.

For flight continuation, *Refer to Climb, Cruise and Descent tables.*

■ **When below FL 250, if speed still unreliable:**

ALL ADRs P/B..... OFF

All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

SPD..... FLY THE GREEN

NAV ADR 1+2+3 FAULT

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

7

DESCENT

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 250	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL225/MEA.....INITIATE

Descend rapidly to FL 225, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL225 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL225
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 225, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first:**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative:**

  X BLEED..... CHECK OPEN

  DESCENT TO FL225/MEA.....CONTINUE

  Descend rapidly to FL 225, to recover the bleed supply from the APU.

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL225 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL225

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS..... ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR..... ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO..... SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM
  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

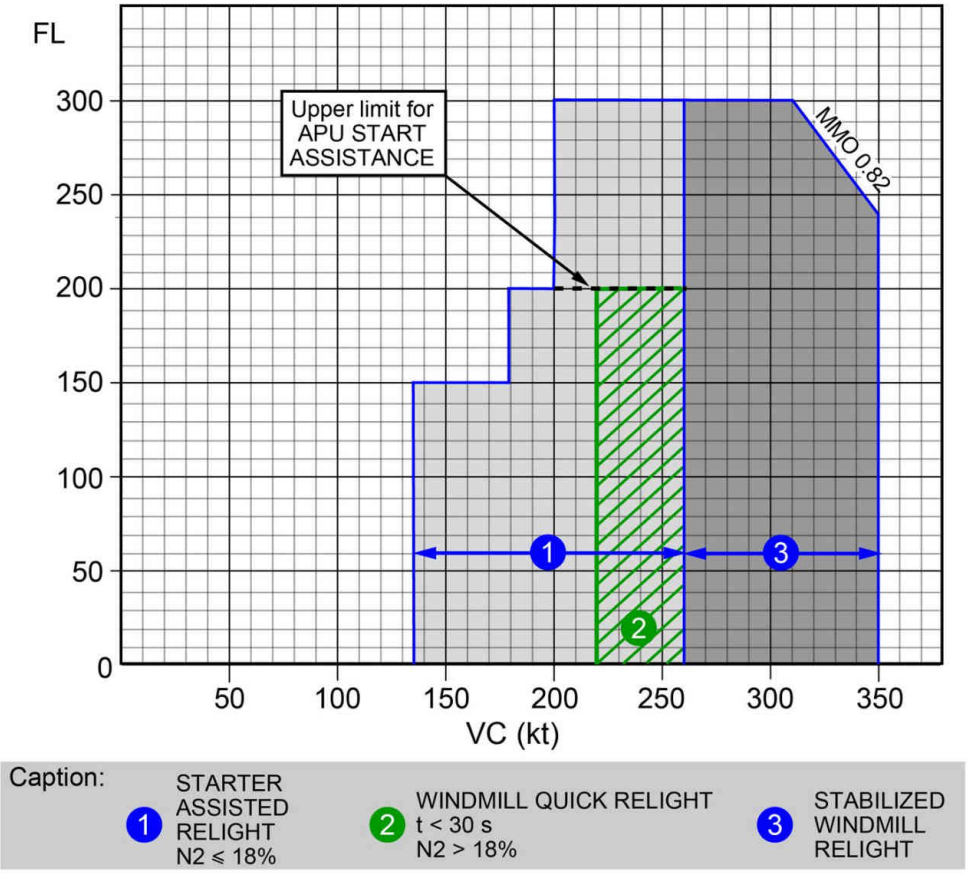
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**
ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**
ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**
THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**
Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

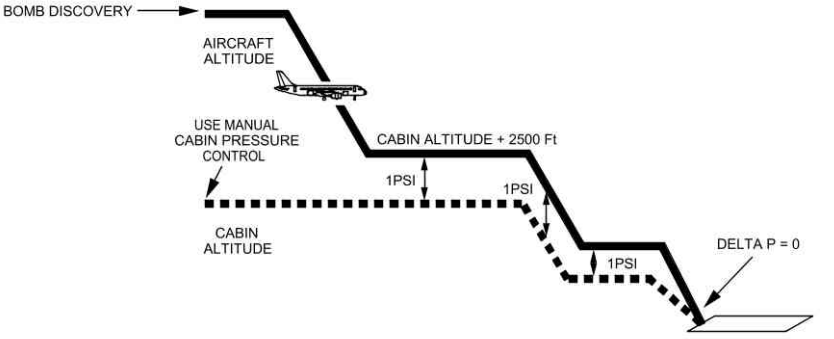
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON
    COMMERCIAL.....OFF

  FLAPS (fuel permitting).....AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL.....AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

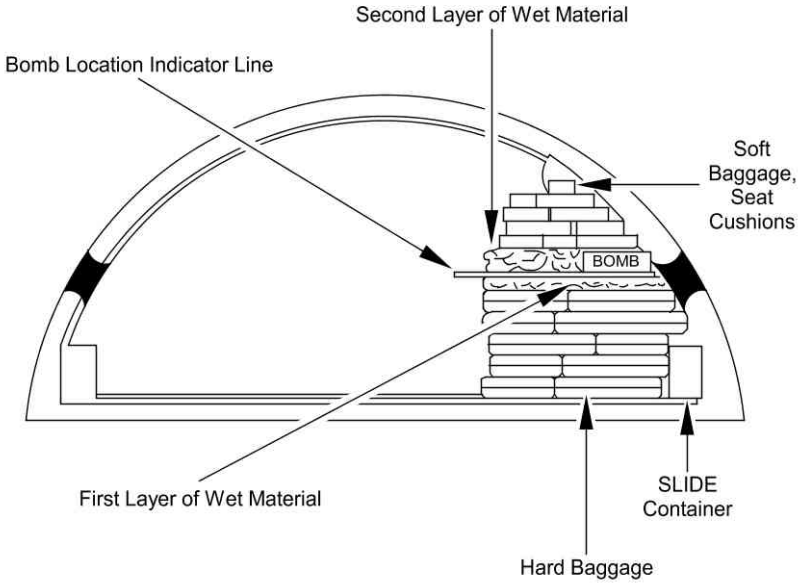
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**Confirm if spurious:** - Check PA function - Check Cabin Interphone function - Check Cabin Lighting function If spurious, reset the CIDS when aircraft is self powered (APU or engine). **On ground or in flight:** - Pull the C/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and, M06 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁, P14 ◁. - After CIDS reset, wait approximately 4 min before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 5 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1 / 2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note: The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note:* *In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320E..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320E	1/2	1	**20 Sep 2012 : Modification of content of the element 20803158.9001001**
			25 Sep 2012 : Modification of content of the element 20803158.9001001

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

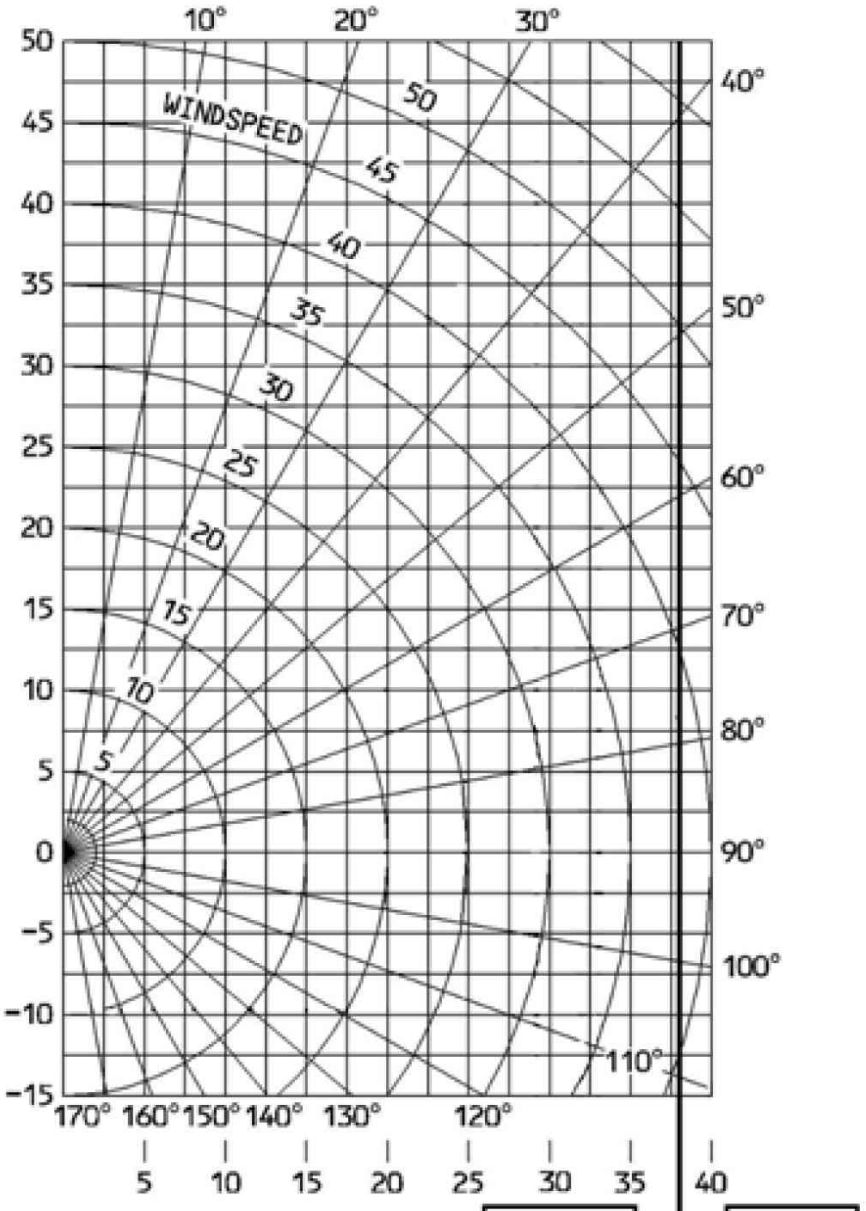
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320E

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	ONE BRK RELEASED		BRK02
	TWO BRK RELEASED		BRK03
	ALTN L(R) RELEASED (IF NORM BRK FAULT)		BRK04
	ALTN L(R) RELEASED (IF G SYS LO PR)		BRK05
	NORM BRK FAULT		BRK06
	NORM + ALTN FAULT		BRK07
NAV	IR 1+2+3 FAULT		NAV01
	DUAL IR FAULT/DUAL ADR FAULT		NAV02
	ALL ADR OFF		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

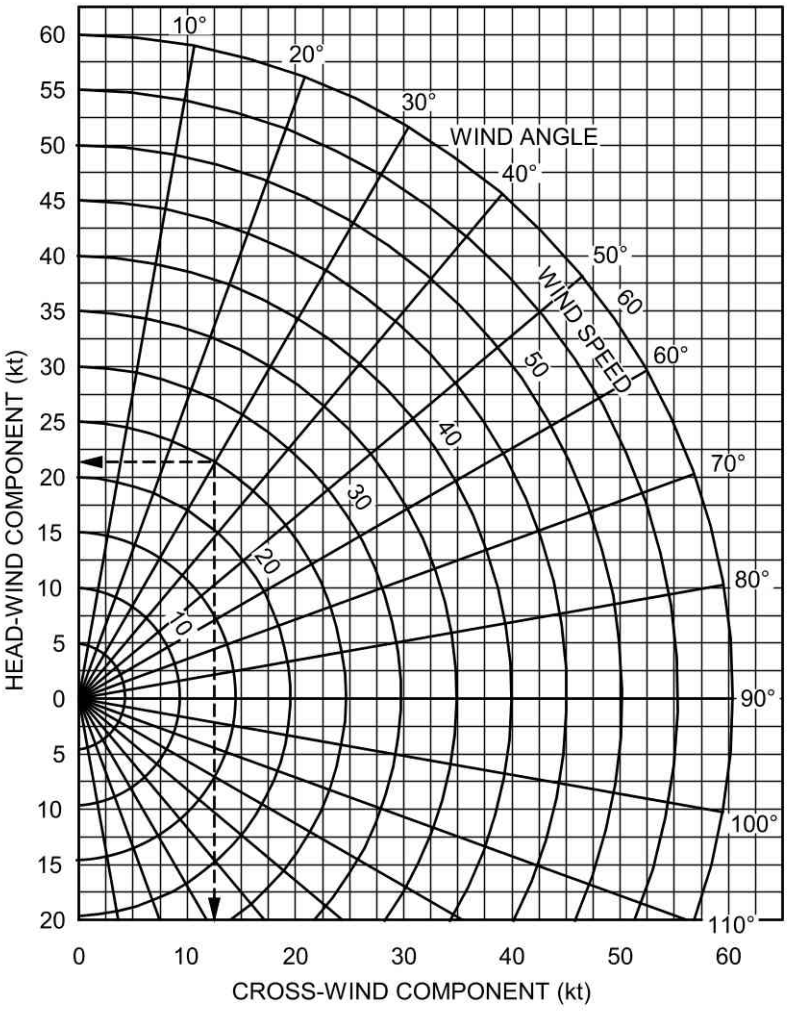
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
ONE BRK RELEASED	FULL	0	**1 260**	- 10	+ 50	+ 90	+ 50	+ 140	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 60	+ 90	+ 60	+ 150	+ 40	+ 40	- 40
TWO BRK RELEASED	FULL	0	**1 540**	- 20	+ 60	+ 100	+ 70	+ 180	+ 60	+ 60	- 60
	3	6	**1 730**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 70	- 70
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 200**	- 30	+ 100	+ 110	+ 110	+ 280	+ 80	+ 170	- 140
	3	6	**2 510**	- 40	+ 120	+ 130	+ 120	+ 310	+ 90	+ 220	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 300**	- 30	+ 110	+ 120	+ 110	+ 300	+ 80	+ 190	- 180
	3	6	**2 620**	- 30	+ 130	+ 150	+ 130	+ 320	+ 100	+ 240	- 230
NORM BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30
NORM + ALTN FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
ONE BRK RELEASED	FULL	0	**1 590**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 70	- 70
	3	6	**1 790**	- 20	+ 60	+ 140	+ 100	+ 260	+ 90	+ 90	- 90
TWO BRK RELEASED	FULL	0	**1 880**	- 20	+ 70	+ 130	+ 110	+ 290	+ 80	+ 110	- 120
	3	6	**2 150**	- 30	+ 80	+ 150	+ 130	+ 330	+ 100	+ 140	- 150
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 30	+ 90	+ 120	+ 120	+ 320	+ 80	+ 180	- 140
	3	6	**2 530**	- 40	+ 110	+ 150	+ 140	+ 340	+ 110	+ 230	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	- 30	+ 100	+ 150	+ 130	+ 350	+ 100	+ 220	- 180
	3	6	**2 700**	- 40	+ 120	+ 180	+ 160	+ 380	+ 120	+ 280	- 230
NORM BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80
NORM + ALTN FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
ONE BRK RELEASED	FULL	0	**1 860**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 110	+ 90	+ 230	+ 80	+ 120	- 150
TWO BRK RELEASED	FULL	0	**2 220**	- 20	+ 50	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 510**	- 30	+ 60	+ 130	+ 120	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 20	+ 100	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 530**	- 30	+ 110	+ 130	+ 130	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 440**	- 30	+ 80	+ 130	+ 120	+ 310	+ 90	+ 230	- 220
	3	6	**2 740**	- 30	+ 100	+ 160	+ 140	+ 330	+ 110	+ 270	- 280
NORM BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
NORM + ALTN FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
ONE BRK RELEASED	FULL	0	**2 060**	- 20	+ 50	+ 110	+ 90	+ 260	+ 70	+ 140	- 150
	3	6	**2 310**	- 20	+ 50	+ 120	+ 110	+ 270	+ 90	+ 170	- 190
TWO BRK RELEASED	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 130	+ 330	+ 90	+ 240	- 220
	3	6	**2 790**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 300	- 280
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 120	+ 340	+ 90	+ 240	- 210
	3	6	**2 780**	- 30	+ 70	+ 140	+ 150	+ 360	+ 110	+ 300	- 280
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 310	- 250
	3	6	**3 060**	- 30	+ 70	+ 170	+ 170	+ 390	+ 120	+ 390	- 330
NORM BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140
NORM + ALTN FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
ONE BRK RELEASED	FULL	0	**2 260**	- 30	+ 80	+ 150	+ 140	+ 380	+ 110	+ 190	- 170
	3	6	**2 650**	- 40	+ 90	+ 180	+ 180	+ 450	+ 130	+ 260	- 220
TWO BRK RELEASED	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 200	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 190	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 900**	- 40	+ 100	+ 190	+ 200	+ 500	+ 140	+ 390	- 280
	3	6	**3 440**	- 50	+ 130	+ 230	+ 270	+ 600	+ 180	+ 550	- 390
NORM BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170
NORM + ALTN FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
ONE BRK RELEASED	FULL	0	**3 330**	- 40	+ 80	+ 150	+ 240	+ 600	+ 140	+ 830	- 380
	3	6	**3 930**	- 50	+ 90	+ 190	+ 300	+ 650	+ 170	+ 1 090	- 510
TWO BRK RELEASED	FULL	0	**3 750**	- 50	+ 30	+ 190	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 230	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**3 750**	- 50	+ 30	+ 180	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 220	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**4 170**	- 50	+ 30	+ 210	+ 500	+ 870	+ 210	+ 2 060	- 320
	3	6	**5 010**	- 60	+ 30	+ 250	+ 630	+ 950	+ 250	+ 2 780	- 520
NORM BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420
NORM + ALTN FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
ALL ADR OFF	3	N/A	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
ALL ADR OFF	3	N/A	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
ALL ADR OFF	3	N/A	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
ALL ADR OFF	3	N/A	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
ALL ADR OFF	3	N/A	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
ALL ADR OFF	3	N/A	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

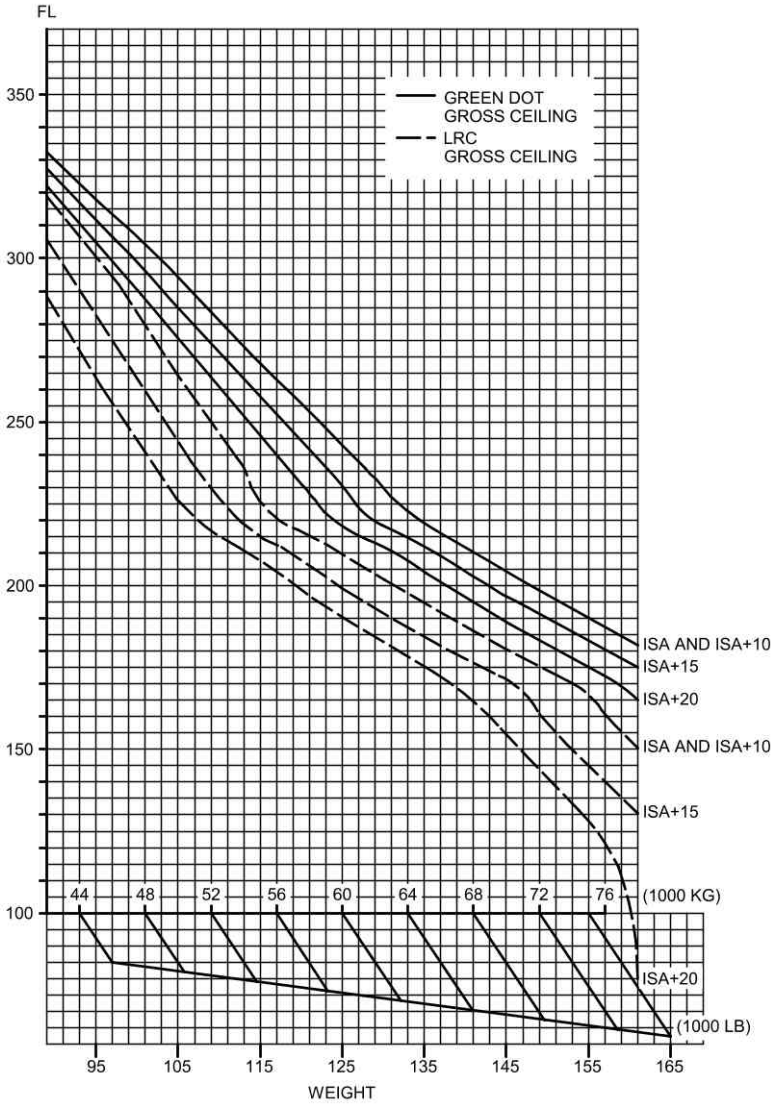
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

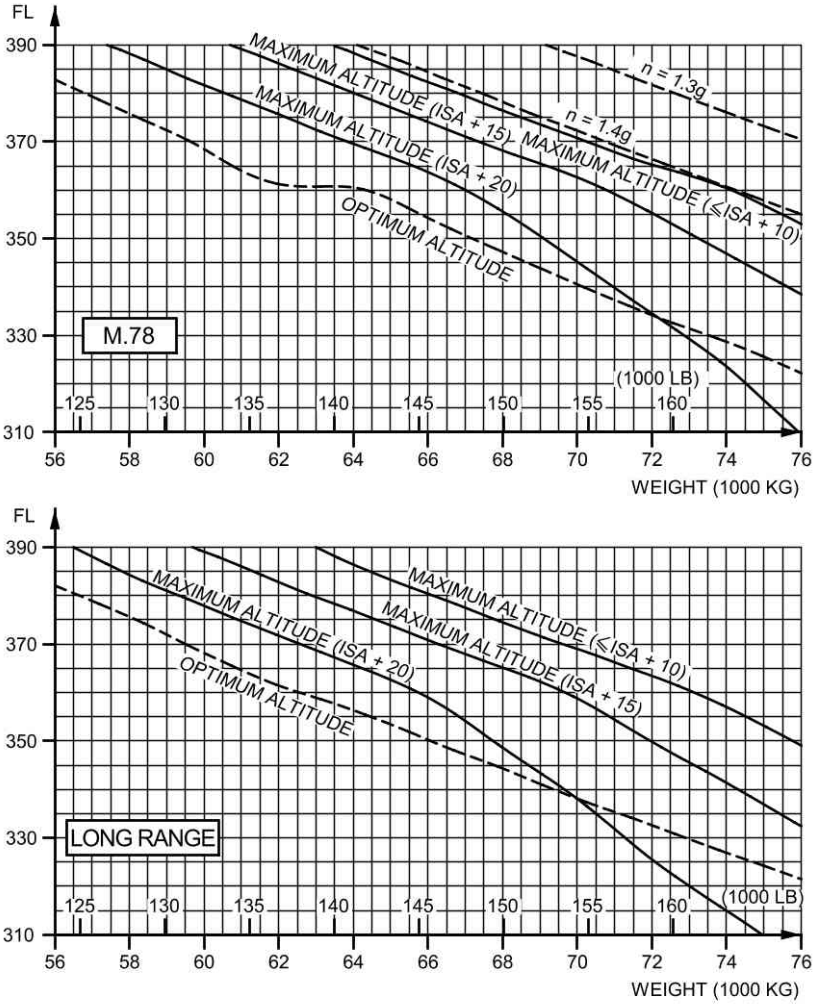
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

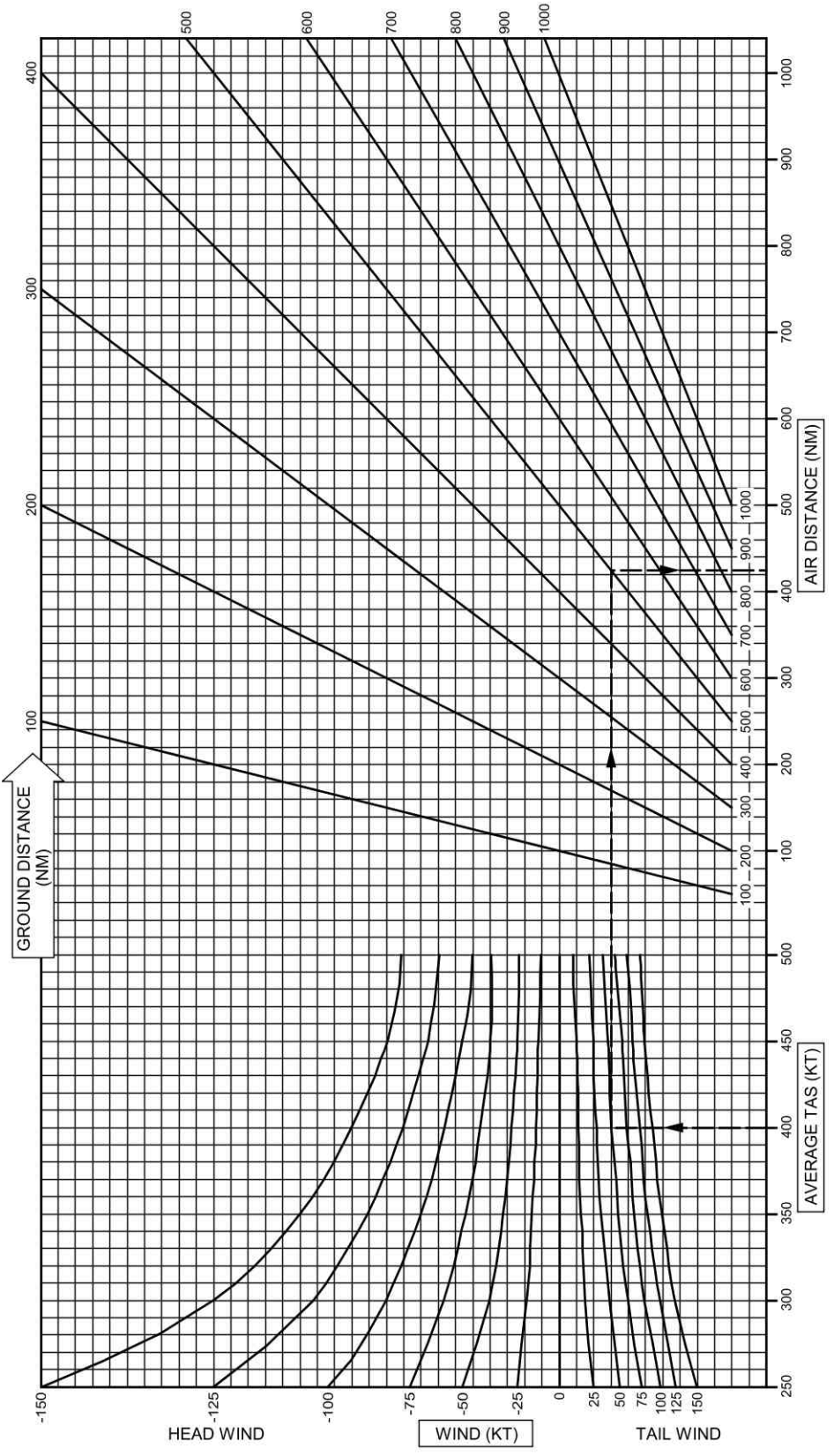
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

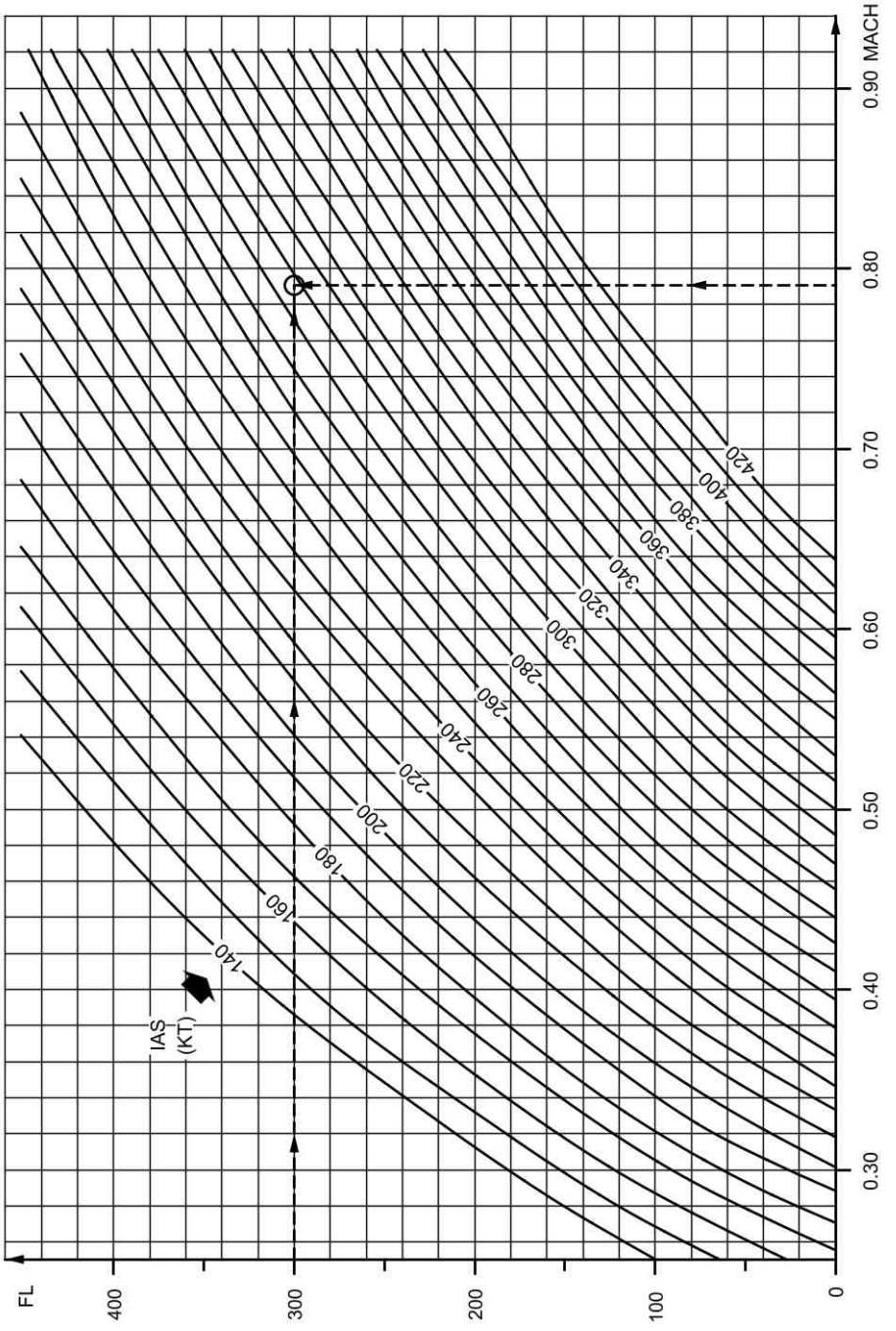
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

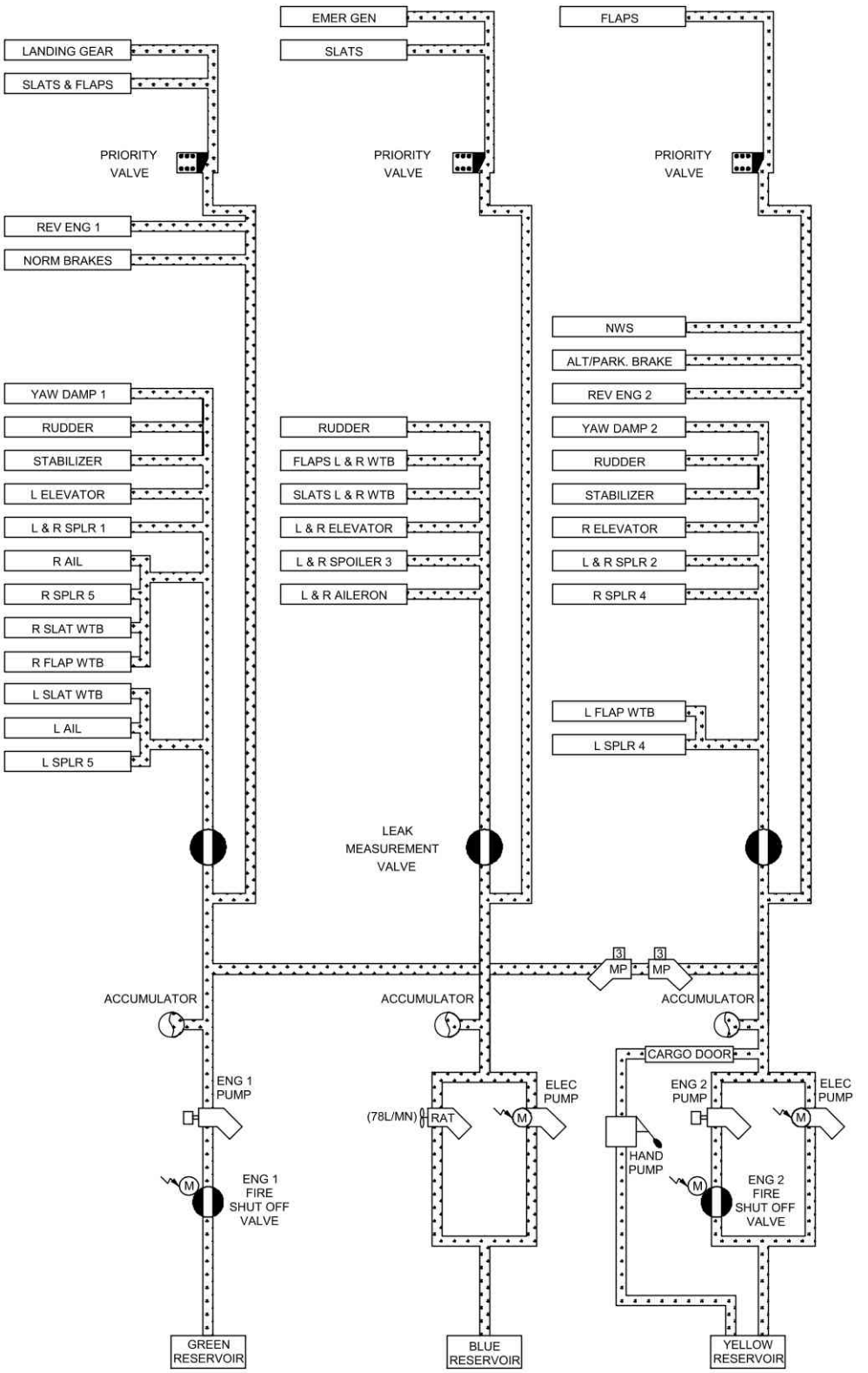
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

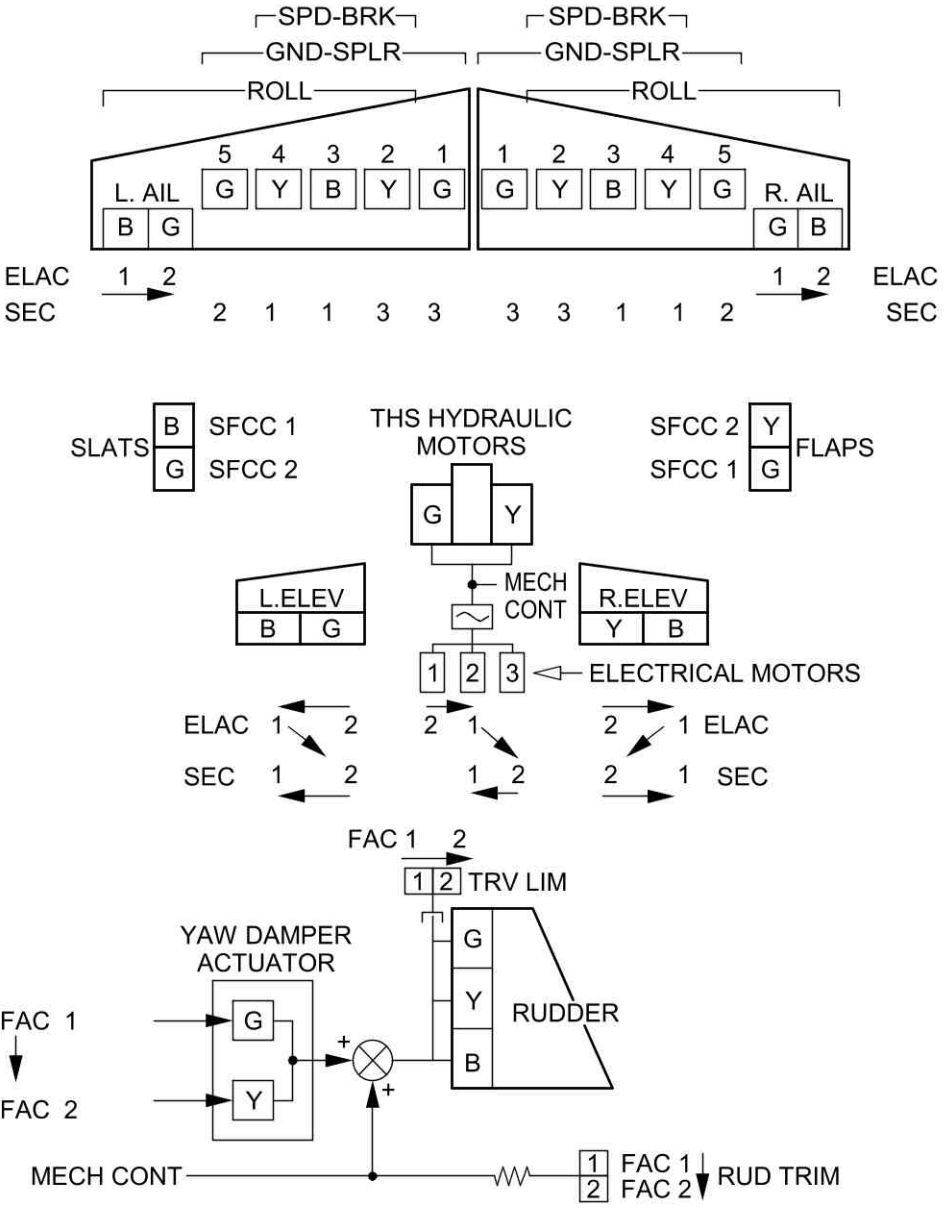
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-41 Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan

Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.00
Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
■ L/G GEAR NOT DOWNLOCKED ■..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSQ**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSQ**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSQ**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSQ**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSQ**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSQ**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB41 Issue 1.0
ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 204.
This OEB is issued to inform the operators of the following: Erroneous alternate (ALTN) fuel predictions are experienced when the flight crew modifies a company route (CO RTE) previously inserted in the alternate Flight Plan (F-PLN).
This OEB provides an explanation and operational recommendations in case of erroneous ALTN fuel predictions.

Applicable to: Aircraft with Honeywell FMGC Release 1A "H2" (MOD 38778, Airbus SB A320 22-1269 and MOD 38779, Airbus SB A320 22-1270)

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013616.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HSQ**				
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013617.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HSQ**				

ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

ECAM ENTRY

None

PROCEDURE

This OEB PROC N°41 is issued to provide flight crews with the following recommendations:
This procedure only applies when a CO RTE is used for ALTN F-PLN. In the case of ALTN fuel predictions erroneously set to zero further to a modification of this ALTN F-PLN:

ENTER manually a waypoint in the en-route F-PLN (neither in the departure, nor in the arrival), to start a new computation of ALTN fuel predictions
Maintain or delete the entered waypoint at convenience
Check the ALTN fuel predictions are correct

Intentionally left blank

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSQ**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSQ**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSQ**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSQ**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSR

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-41 **Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	ALL	03 AUG 12
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSR**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSR**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSR**				
	OEB41 issue 1.0	W	N	03 AUG 12	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan
	Criteria: P10763 **Applicable to: B-HSR**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSR**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSR**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
M	OEBPROC-41	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan	03 AUG 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSR** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
E	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013738.0001001	03 AUG 12
	Criteria: K10463 **Applicable to: B-HSR** *Impacted DU: NONE*			
E	ABN-80	**Computer Reset Table - 23 - Communications**	00013850.0024001	03 AUG 12
	Criteria: K12824, K12825, K3901, K8400, K9009, SA **Applicable to: B-HSR** *Impacted DU: 00010910 Computer Reset Table - 23 - Communications*			
	Reason for issue: *CIDS Director Hardware 333B and On Board Replacement Module (OBRM) 33A are sensitive to short power supply interruptions. These power supply interruptions occur when the aircraft is supplied by external power. As a consequence, ECAM caution "COM CIDS 1+2 FAULT" or CIDS Maintenance status 'CIDS 1' or 'CIDS 2' could be spuriously triggered. In such event, the flight crew should verify that the CIDS is functioning normally by checking the PA, Cabin Interphone and Cabin lighting function. If the ECAM caution is spurious, it can be removed by resetting the CIDS when the aircraft is powered by the APU.*			
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSR** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	5030	HDA 0059	B-HSR	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P3112		25 NOV 11	NAVIGATION - INSTALL A TCAS II COLLINS SYSTEM
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P5613		25 NOV 11	NAVIGATION - TCAS - INSTALL COLLINS TCAS TTR921 WITH COLLINS ATC TPR901
	Applicable to: ALL			
	K4457		25 NOV 11	A.P.U.-POWER PLANT-INTRODUCE ALLIED SIGNAL APU 131-9(A)
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P12330		30 MAY 12	NAVIGATION-TRAFFIC COLLISION AVOIDANCE SYSTEM (TCAS) - INSTALL TCAS COLLINS TTR-921 CHANGE 7.1
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	K9234		25 NOV 11	EQUIPMENT/FURNISHINGS-MISC. EMERGENCY EQUIPMENT-INSTALL ELT (406AF) WITH RCP IN COCKPIT ON ENH. PROV. - ELTA
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P0160		25 NOV 11	OXYGEN - FLIGHT CREW OXYGEN - INSTALL A 115 CU/FT STEEL OXYGEN CYLINDER -
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10516		25 NOV 11	AIRBORNE AUXILIARY POWER - CONTROL AND MONITORING - INTRODUCE HONEWELL VECB WITH SOFTWARE -04
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04
ASYMMETRIC BRAKING..... 32.05

[8] ABN-34 Navigation

[9] ■ ALL ADR OFF ■..... 34.02
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[10] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[11] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[12] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07

■ Stall Warning at Lift-Off ■ 80.07
TAILSTRIKE 80.08
VOLCANIC ASH ENCOUNTER 80.09
■ WINDSHEAR AHEAD ■ 80.10
■ WINDSHEAR ■ 80.10A
WINDSHIELD/WINDOW ARCING 80.11
WINDSHIELD/WINDOW CRACKED 80.12
ECAM Advisory Conditions 80.13
Tripped C/B Re-Engagement 80.14
Computer Reset 80.15
13 Computer Reset Table 80.16
■ EMERGENCY EVACUATION ■ 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC Navigation	2/4	8	Documentation update: Deletion of the "00010841.0008001 TCAS WARNINGS" documentary unit.
ABN-PLP-TOC ALL ADR OFF	2/4	9	Documentation update: Deletion of the "00010842.0042001 ALL ADR OFF" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	10	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	11	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	12	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	13	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-32 ASYMMETRIC BRAKING	32.05	2	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 ALL ADR OFF	34.02	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 TCAS WARNINGS	34.06	2	Documentation update: Addition of "TCAS WARNINGS" documentary unit
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16E	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

Intentionally left blank

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	ABCU	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.
(b) Crew oxygen valve inoperative.
(c) Lost, when speed is below 50 kt.
(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**
  - CAB FANS.....ON
  - PACK 1+2..... OFF
- **If no fuel vapors:**
  - CAB FANS.....OFF
  - PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA

DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

ATC.....NOTIFY

SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE

While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**
  - APU MASTER SW (if in ELEC EMER CONFIG)... ON
  - PACK 1+2.....OFF
  - MODE SEL.....MAN
  - MAN V/S CTL..... FULL UP
  - RAM AIR.....ON
  - APU MASTER SW.....OFF
  - **If smoke persists, open CKPT window:**
    - MAX SPEED.....200 KT
    - COCKPIT DOOR.....OPEN
    - HEADSETS.....ON
    - PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.
- The destination EFOB turns to amber on the F.PLN (or on the FUEL PRED) page, or
- ″DEST EFOB BELOW MIN″ appears on the MCDU scratchpad.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD
The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

FUEL LEAK (Cont'd)

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

  ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

2 Apply brake progressively on the available side. Counter swing with the rudder. Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

Intentionally left blank

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	*The altitude displayed on the PFD is a GPS altitude.*

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.

Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

1

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

  LDG GRVTY EXTN.....DOWN

CAUTION	*All gear doors remain open.*

- **WHEN L/G DOWNLOCKED:**

  L/G lever.....DOWN

  GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

  MAN V/S CTL.....FULL UP

CAUTION	Check that the outflow valve is fully open and that cabin altitude is at airfield elevation before opening the doors.

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET

ALL ADR OFF (Cont'd)

F/CTL PROT
ADR 1+2+3
RUD TRV LIM
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR ◁✻

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

2

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "LEVEL OFF" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: Resolution Advisories (RA) are inhibited below 900 ft.

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

To monitor speed, refer to IRS Ground Speed or GPS Ground Speed variations.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

■ **If at least one ADR is reliable:**

Faulty ADR(s).....OFF

REMAINING AIR DATA.....CONFIRM

Alternates sources may be used to evaluate the air data:

- *GPS altitude.*
- *GPS and IRS ground speeds, taking into account altitude and wind effect.*

■ **If affected ADR(s) cannot be identified, or if all ADRs are affected:**

■ **When above FL 250:**

ONE ADR.....KEEP ON

TWO ADRs..... OFF

This prevents the flight control laws from using two coherent but unreliable ADR data.

For flight continuation, *Refer to Climb, Cruise and Descent tables.*

■ **When below FL 250, if speed still unreliable:**

ALL ADRs P/B..... OFF

All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

SPD..... FLY THE GREEN

NAV ADR 1+2+3 FAULT

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

7

DESCENT

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 250	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL225/MEA.....INITIATE

Descend rapidly to FL 225, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL225 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL225
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 225, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first:**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative:**

  X BLEED..... CHECK OPEN

  DESCENT TO FL225/MEA.....CONTINUE

  Descend rapidly to FL 225, to recover the bleed supply from the APU.

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL225 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL225

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

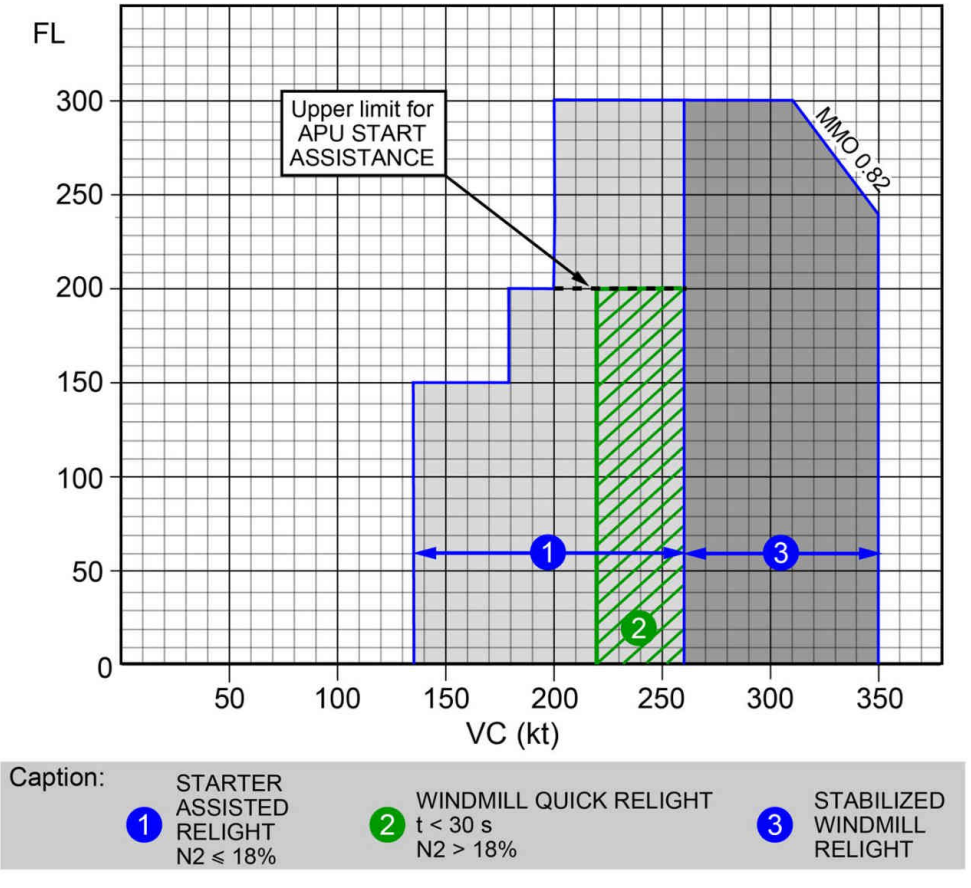
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: 1. *High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*
2. *High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.*

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

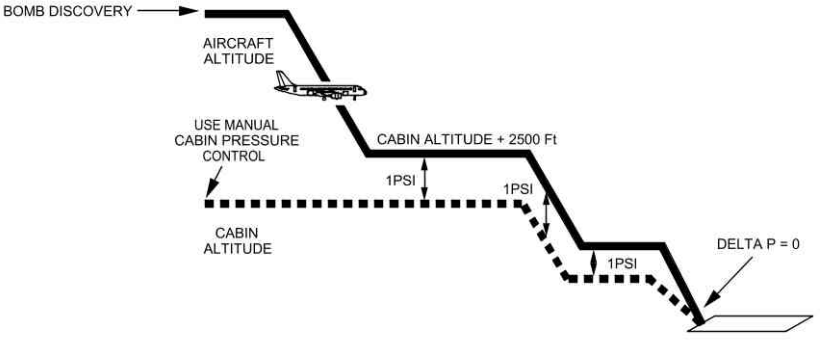
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF

CABIN PRESS MODE SEL.....MAN

CAB ALT.....MAINTAIN

CABIN CREW.....NOTIFY

ATC/COMPANY OPERATIONS.....NOTIFY

FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE

FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE

AVOID SHARP MANEUVERS

CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

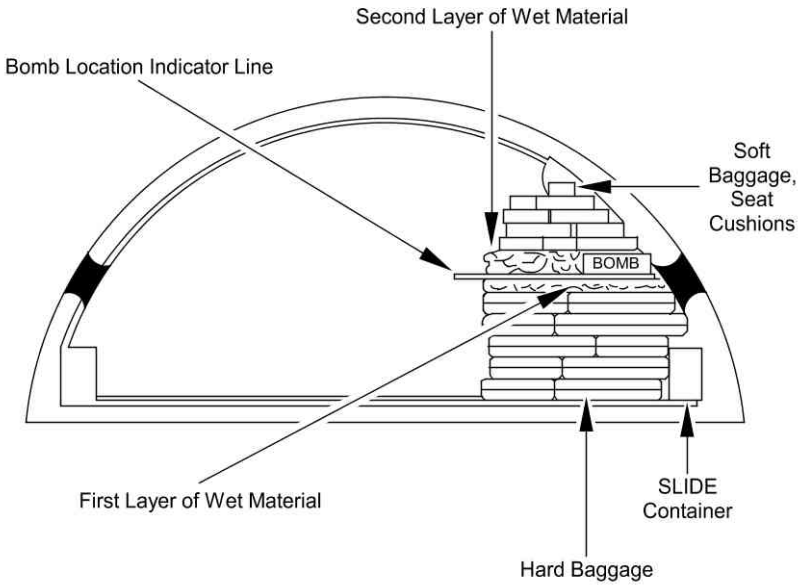
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**Confirm if spurious:** - Check PA function - Check Cabin Interphone function - Check Cabin Lighting function If spurious, reset the CIDS when aircraft is self powered (APU or engine). **On ground or in flight:** - Pull the C/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and, M06 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁ , P14 ◁ . - After CIDS reset, wait approximately 4 min before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 5 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1 / 2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note: The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note: In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320E..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A320E	1/2	1	**20 Sep 2012 : Modification of content of the element 20803158.9001001**
			25 Sep 2012 : Modification of content of the element 20803158.9001001

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

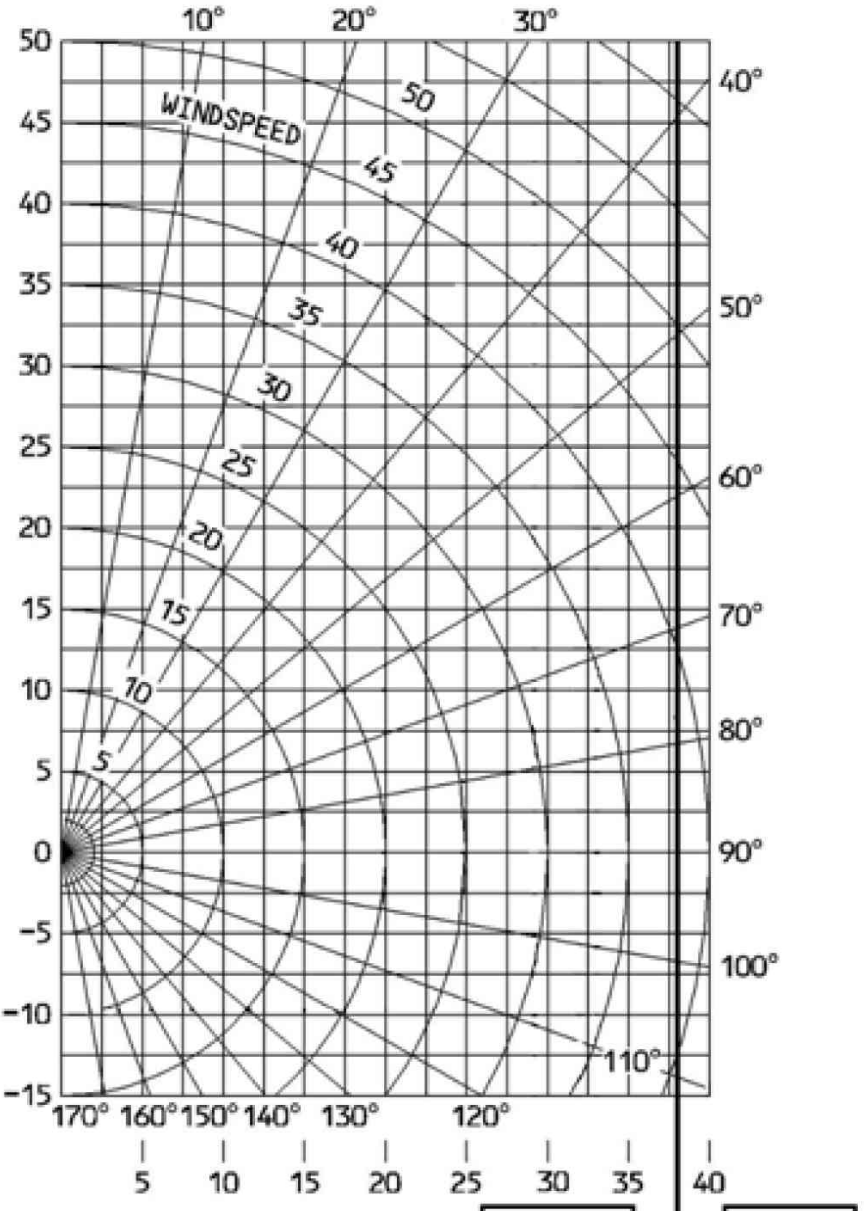
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320E

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	ONE BRK RELEASED		BRK02
	TWO BRK RELEASED		BRK03
	ALTN L(R) RELEASED (IF NORM BRK FAULT)		BRK04
	ALTN L(R) RELEASED (IF G SYS LO PR)		BRK05
	NORM BRK FAULT		BRK06
	NORM + ALTN FAULT		BRK07
NAV	IR 1+2+3 FAULT		NAV01
	DUAL IR FAULT/DUAL ADR FAULT		NAV02
	ALL ADR OFF		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

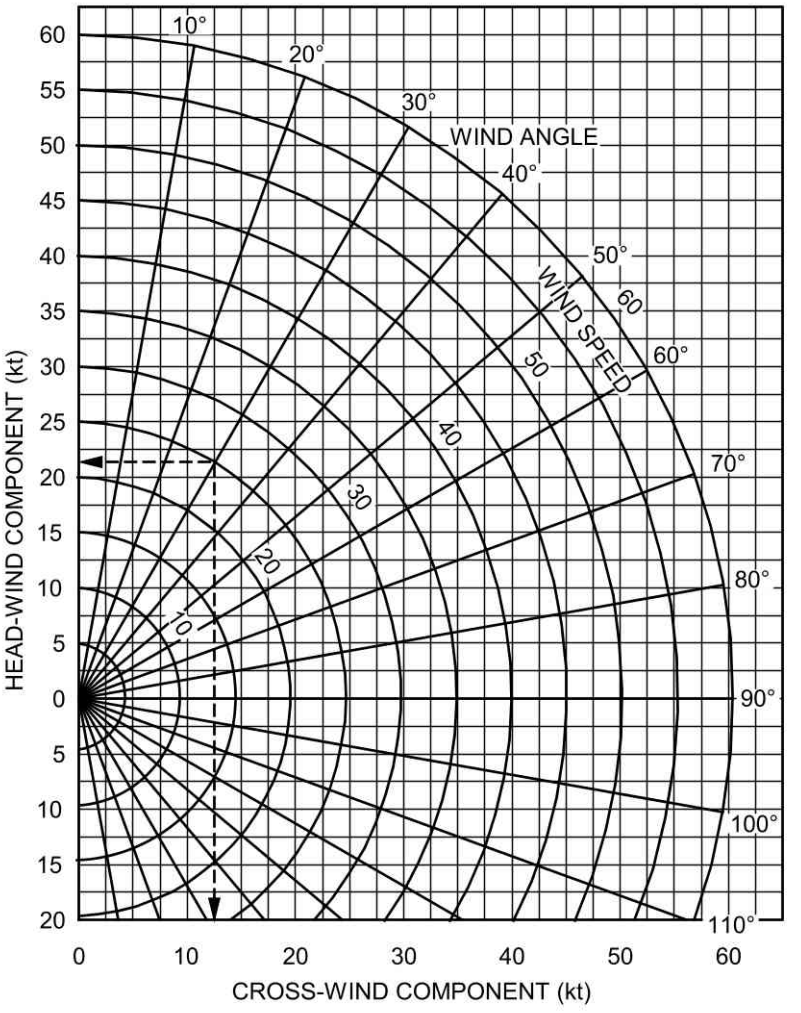
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
ONE BRK RELEASED	FULL	0	**1 260**	- 10	+ 50	+ 90	+ 50	+ 140	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 60	+ 90	+ 60	+ 150	+ 40	+ 40	- 40
TWO BRK RELEASED	FULL	0	**1 540**	- 20	+ 60	+ 100	+ 70	+ 180	+ 60	+ 60	- 60
	3	6	**1 730**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 70	- 70
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 200**	- 30	+ 100	+ 110	+ 110	+ 280	+ 80	+ 170	- 140
	3	6	**2 510**	- 40	+ 120	+ 130	+ 120	+ 310	+ 90	+ 220	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 300**	- 30	+ 110	+ 120	+ 110	+ 300	+ 80	+ 190	- 180
	3	6	**2 620**	- 30	+ 130	+ 150	+ 130	+ 320	+ 100	+ 240	- 230
NORM BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30
NORM + ALTN FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
ONE BRK RELEASED	FULL	0	**1 590**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 70	- 70
	3	6	**1 790**	- 20	+ 60	+ 140	+ 100	+ 260	+ 90	+ 90	- 90
TWO BRK RELEASED	FULL	0	**1 880**	- 20	+ 70	+ 130	+ 110	+ 290	+ 80	+ 110	- 120
	3	6	**2 150**	- 30	+ 80	+ 150	+ 130	+ 330	+ 100	+ 140	- 150
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 30	+ 90	+ 120	+ 120	+ 320	+ 80	+ 180	- 140
	3	6	**2 530**	- 40	+ 110	+ 150	+ 140	+ 340	+ 110	+ 230	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	- 30	+ 100	+ 150	+ 130	+ 350	+ 100	+ 220	- 180
	3	6	**2 700**	- 40	+ 120	+ 180	+ 160	+ 380	+ 120	+ 280	- 230
NORM BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80
NORM + ALTN FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
ONE BRK RELEASED	FULL	0	**1 860**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 110	+ 90	+ 230	+ 80	+ 120	- 150
TWO BRK RELEASED	FULL	0	**2 220**	- 20	+ 50	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 510**	- 30	+ 60	+ 130	+ 120	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 20	+ 100	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 530**	- 30	+ 110	+ 130	+ 130	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 440**	- 30	+ 80	+ 130	+ 120	+ 310	+ 90	+ 230	- 220
	3	6	**2 740**	- 30	+ 100	+ 160	+ 140	+ 330	+ 110	+ 270	- 280
NORM BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
NORM + ALTN FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
ONE BRK RELEASED	FULL	0	**2 060**	- 20	+ 50	+ 110	+ 90	+ 260	+ 70	+ 140	- 150
	3	6	**2 310**	- 20	+ 50	+ 120	+ 110	+ 270	+ 90	+ 170	- 190
TWO BRK RELEASED	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 130	+ 330	+ 90	+ 240	- 220
	3	6	**2 790**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 300	- 280
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 120	+ 340	+ 90	+ 240	- 210
	3	6	**2 780**	- 30	+ 70	+ 140	+ 150	+ 360	+ 110	+ 300	- 280
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 310	- 250
	3	6	**3 060**	- 30	+ 70	+ 170	+ 170	+ 390	+ 120	+ 390	- 330
NORM BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140
NORM + ALTN FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
ONE BRK RELEASED	FULL	0	**2 260**	- 30	+ 80	+ 150	+ 140	+ 380	+ 110	+ 190	- 170
	3	6	**2 650**	- 40	+ 90	+ 180	+ 180	+ 450	+ 130	+ 260	- 220
TWO BRK RELEASED	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 200	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 190	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 900**	- 40	+ 100	+ 190	+ 200	+ 500	+ 140	+ 390	- 280
	3	6	**3 440**	- 50	+ 130	+ 230	+ 270	+ 600	+ 180	+ 550	- 390
NORM BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170
NORM + ALTN FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
ONE BRK RELEASED	FULL	0	**3 330**	- 40	+ 80	+ 150	+ 240	+ 600	+ 140	+ 830	- 380
	3	6	**3 930**	- 50	+ 90	+ 190	+ 300	+ 650	+ 170	+ 1 090	- 510
TWO BRK RELEASED	FULL	0	**3 750**	- 50	+ 30	+ 190	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 230	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**3 750**	- 50	+ 30	+ 180	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 220	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**4 170**	- 50	+ 30	+ 210	+ 500	+ 870	+ 210	+ 2 060	- 320
	3	6	**5 010**	- 60	+ 30	+ 250	+ 630	+ 950	+ 250	+ 2 780	- 520
NORM BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420
NORM + ALTN FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
ALL ADR OFF	3	N/A	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
ALL ADR OFF	3	N/A	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
ALL ADR OFF	3	N/A	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
ALL ADR OFF	3	N/A	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
ALL ADR OFF	3	N/A	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
ALL ADR OFF	3	N/A	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

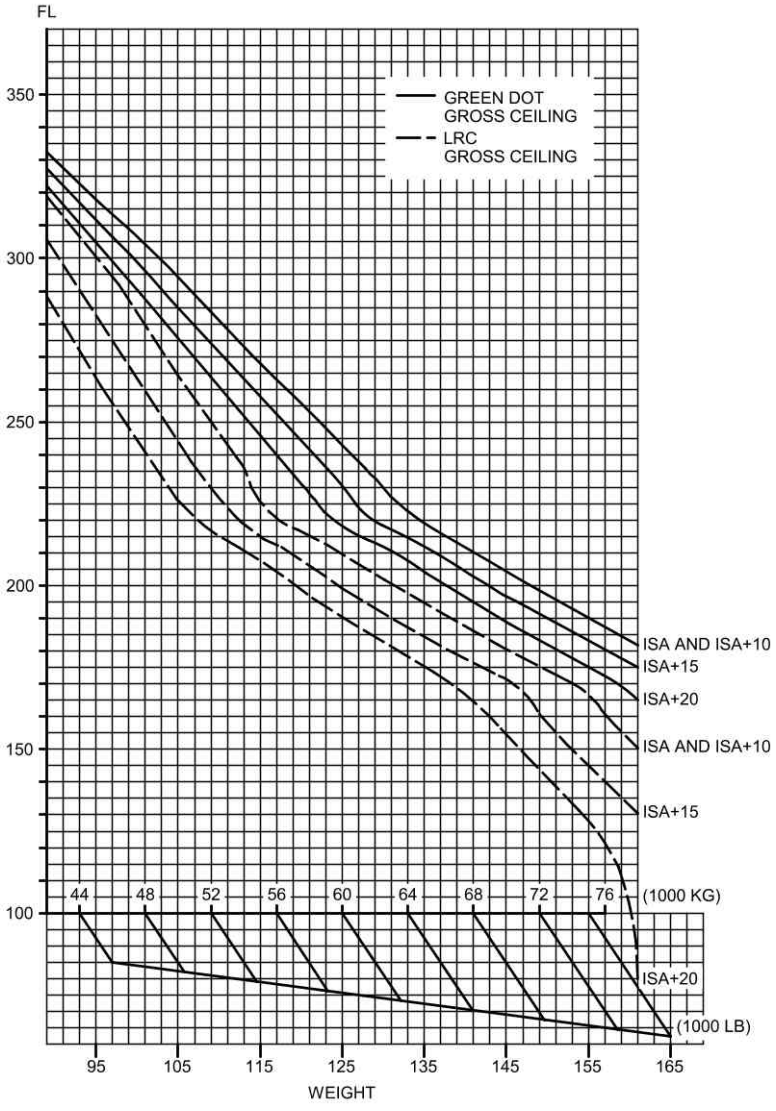
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

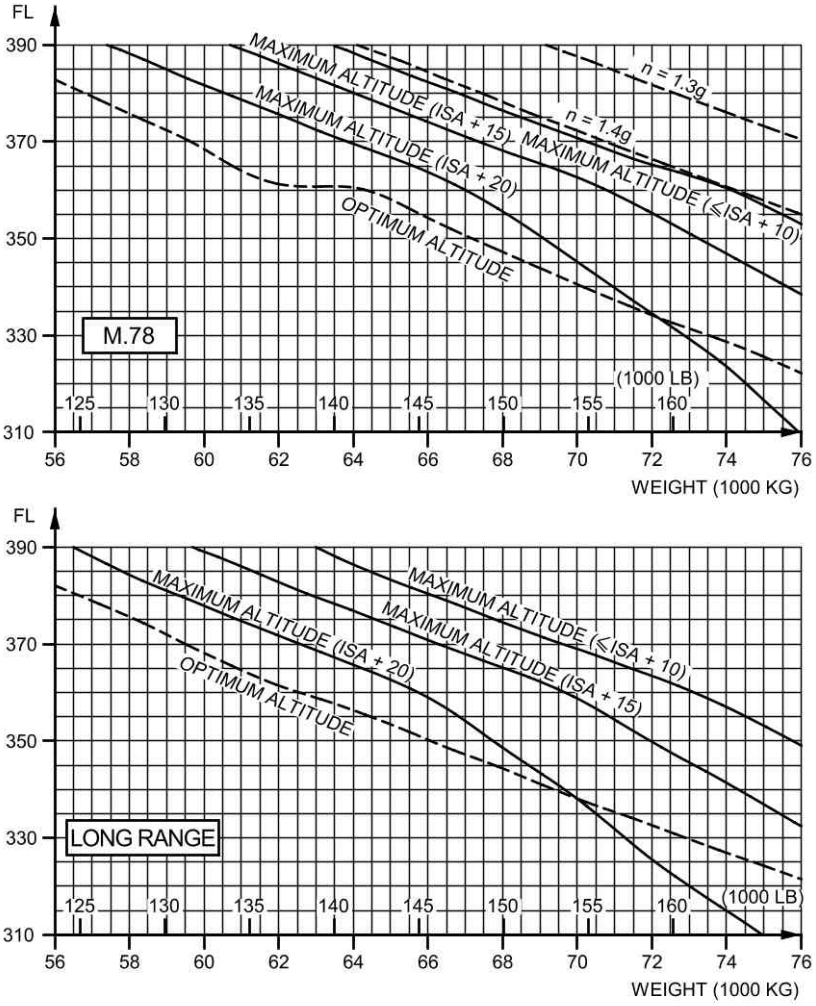
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

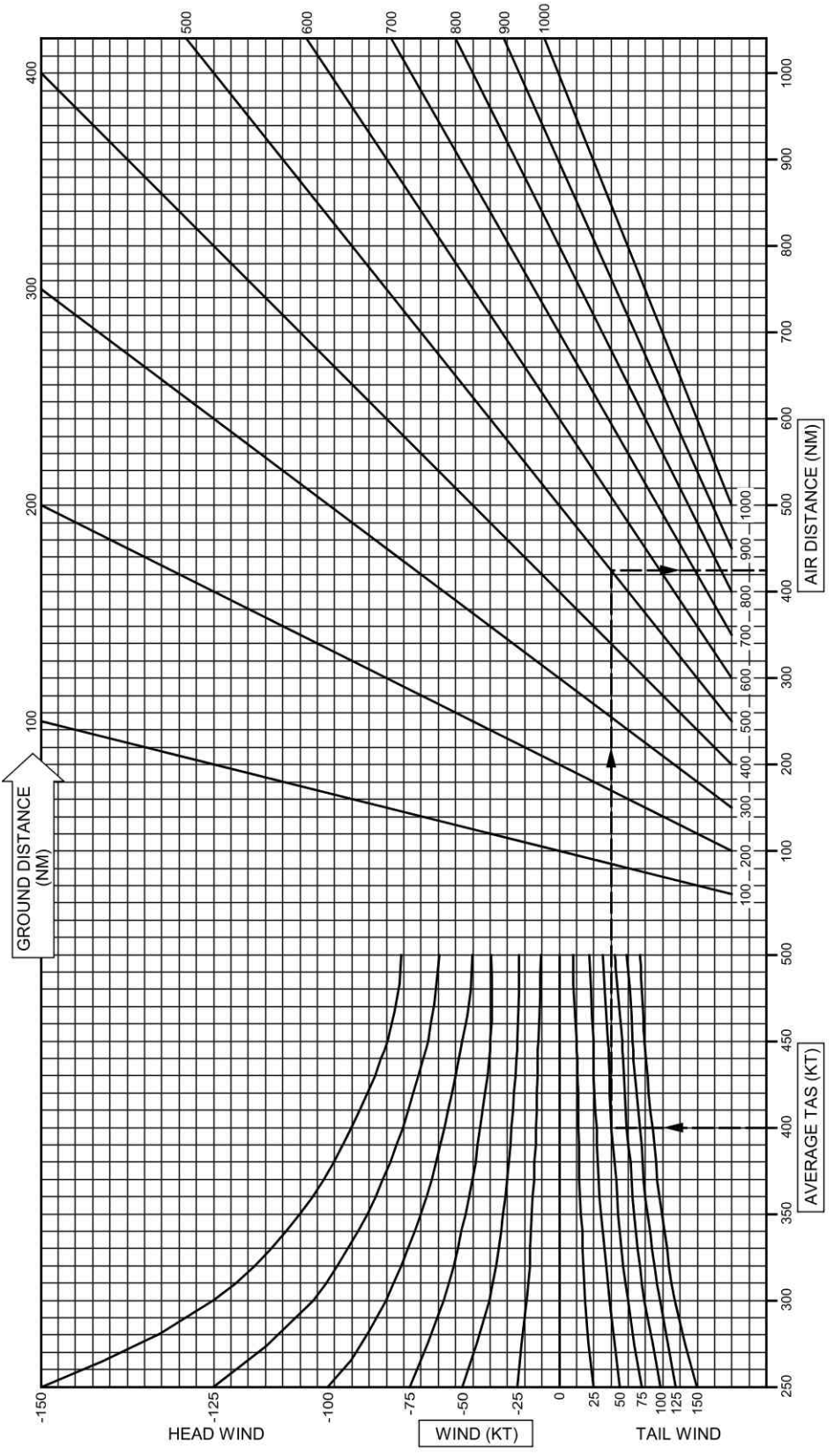
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

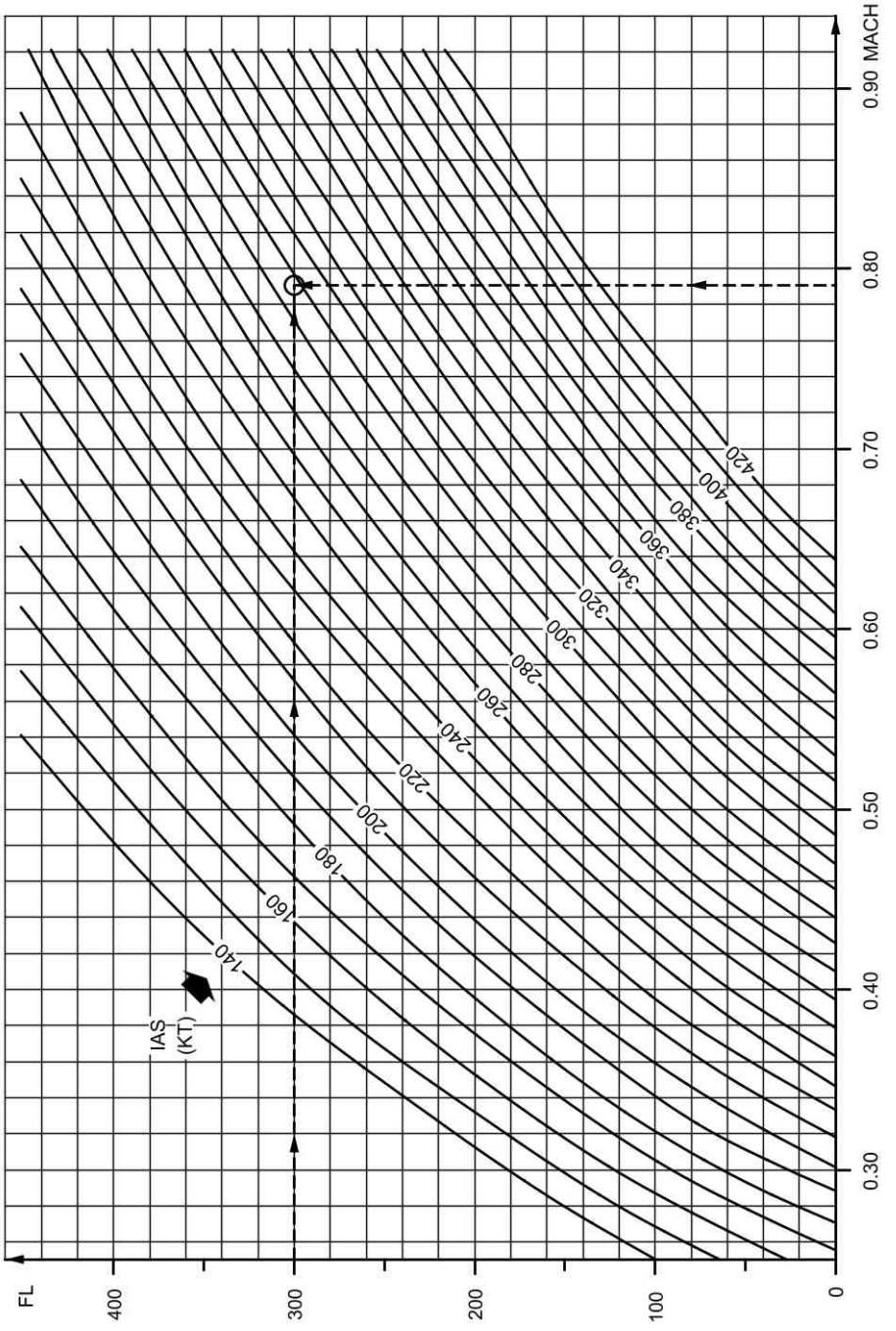
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

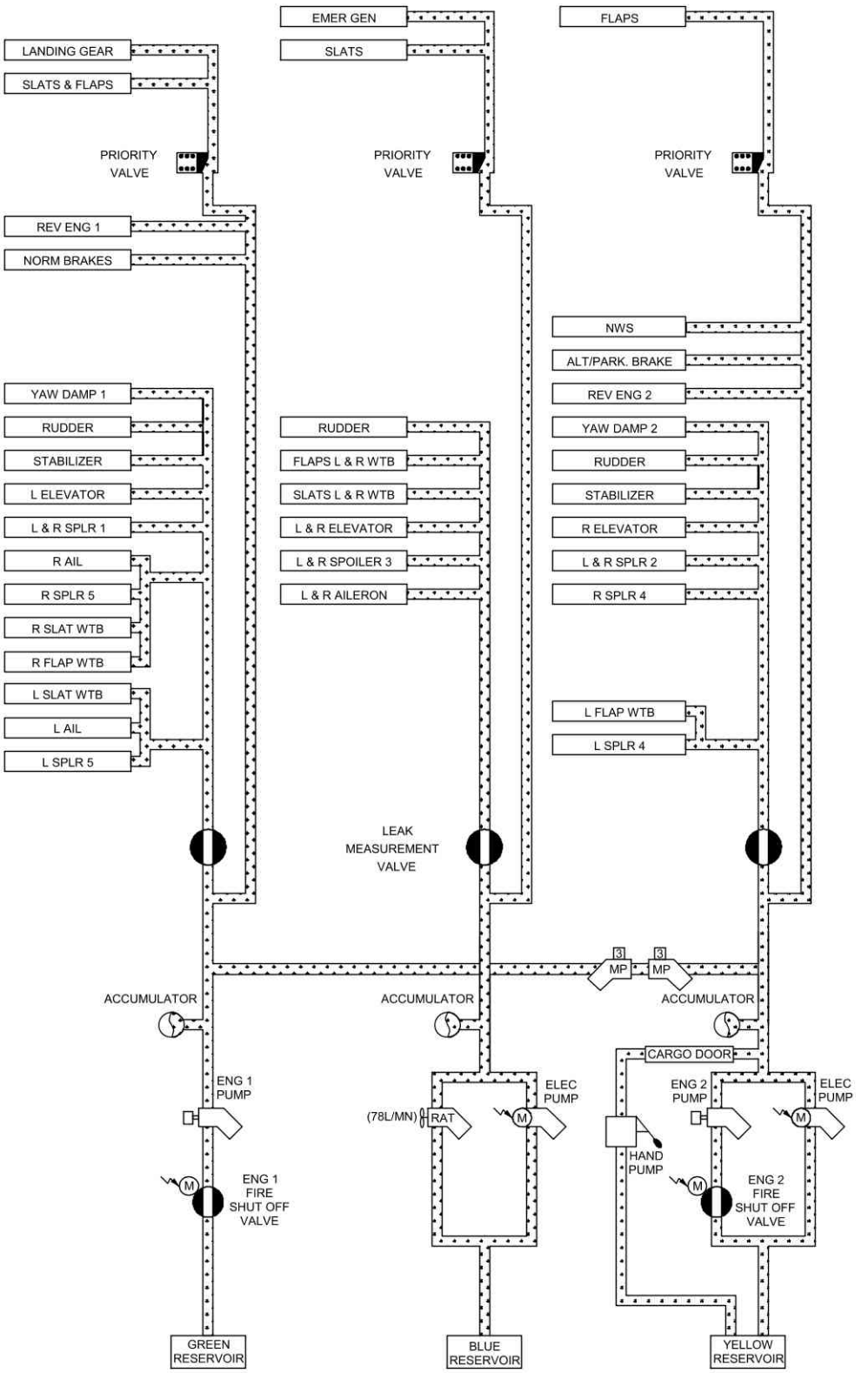
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

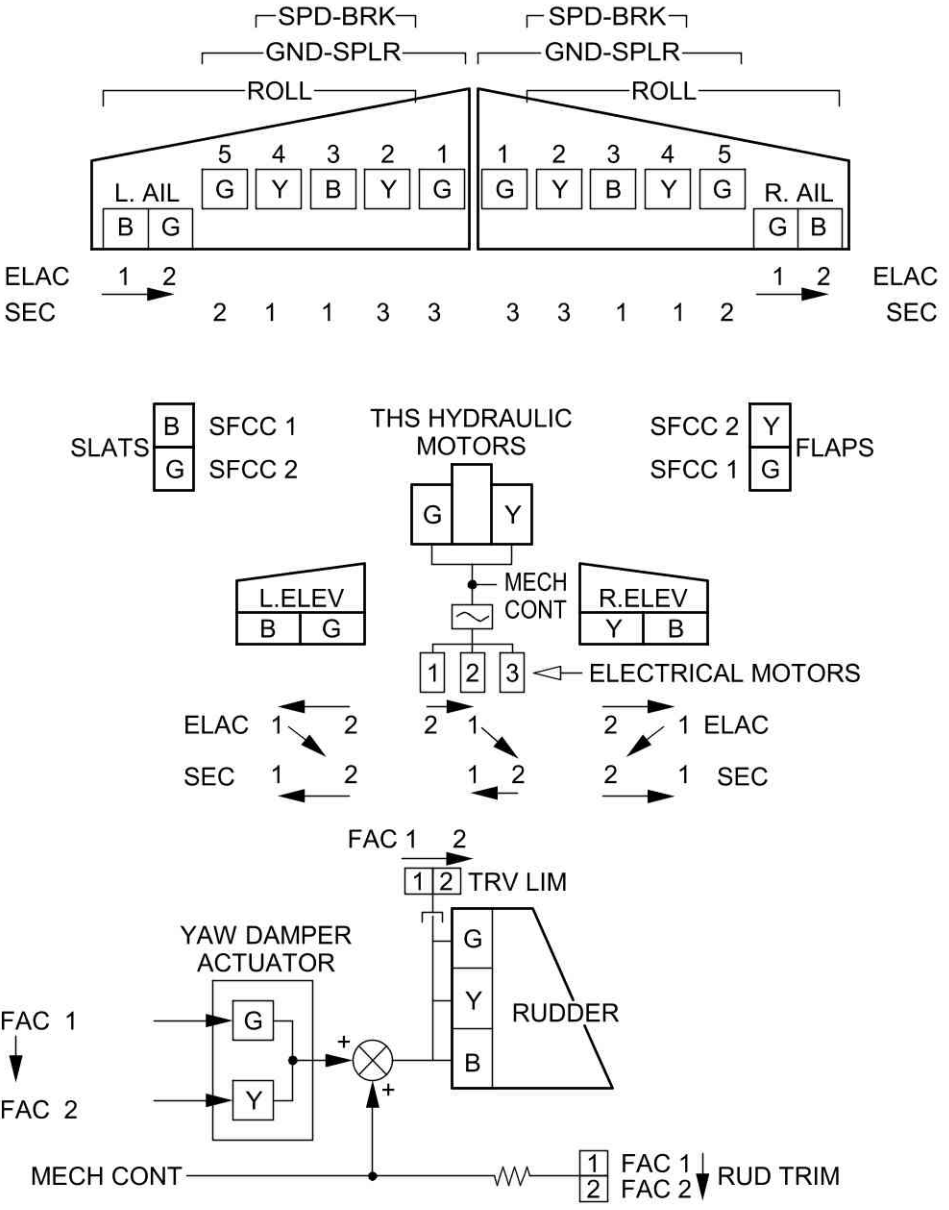
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-41 Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan

Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.00
Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSR**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSR**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSR**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSR**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSR**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSR**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB41 Issue 1.0
ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 204.
This OEB is issued to inform the operators of the following: Erroneous alternate (ALTN) fuel predictions are experienced when the flight crew modifies a company route (CO RTE) previously inserted in the alternate Flight Plan (F-PLN).
This OEB provides an explanation and operational recommendations in case of erroneous ALTN fuel predictions.

Applicable to: Aircraft with Honeywell FMGC Release 1A "H2" (MOD 38778, Airbus SB A320 22-1269 and MOD 38779, Airbus SB A320 22-1270)

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013616.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HSR**				
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013617.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HSR**				

ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

ECAM ENTRY

None

PROCEDURE

This OEB PROC N°41 is issued to provide flight crews with the following recommendations:
This procedure only applies when a CO RTE is used for ALTN F-PLN. In the case of ALTN fuel predictions erroneously set to zero further to a modification of this ALTN F-PLN:

ENTER manually a waypoint in the en-route F-PLN (neither in the departure, nor in the arrival), to start a new computation of ALTN fuel predictions
Maintain or delete the entered waypoint at convenience
Check the ALTN fuel predictions are correct

Intentionally left blank

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSR**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSR**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3..... ON
LANDING PERFORMANCE ASSESSMENT..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSR**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSR**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HST

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-MISC **Miscellaneous**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12
OEBPROC-41 **Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	ALL	03 AUG 12
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HST**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HST**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HST**				
	OEB41 issue 1.0	W	N	03 AUG 12	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan
	Criteria: P10763 **Applicable to: B-HST**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HST**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HST**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
E	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
M	OEBPROC-41	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan	03 AUG 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HST** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
E	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013738.0001001	03 AUG 12
	Criteria: K10463 **Applicable to: B-HST** *Impacted DU: NONE*			
E	ABN-80	**Computer Reset Table - 23 - Communications**	00013850.0024001	03 AUG 12
	Criteria: K12824, K12825, K3901, K8400, K9009, SA **Applicable to: B-HST** *Impacted DU: 00010910 Computer Reset Table - 23 - Communications*			
	Reason for issue: *CIDS Director Hardware 333B and On Board Replacement Module (OBRM) 33A are sensitive to short power supply interruptions. These power supply interruptions occur when the aircraft is supplied by external power. As a consequence, ECAM caution "COM CIDS 1+2 FAULT" or CIDS Maintenance status 'CIDS 1' or 'CIDS 2' could be spuriously triggered. In such event, the flight crew should verify that the CIDS is functioning normally by checking the PA, Cabin Interphone and Cabin lighting function. If the ECAM caution is spurious, it can be removed by resetting the CIDS when the aircraft is powered by the APU.*			
N	ABN-80	**Computer Reset Table- 25 - Equipment**	00013739.0001001	03 AUG 12
	Criteria: K11047 **Applicable to: B-HST** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit (TDU) provides Operators with the CDSS reset procedure in case of flickering or total loss of the video camera on the ECAM System Display (SD), accompanied by the VIDEO NOT AVAIL message.*			
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HST** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	5362	HDA 0061	B-HST	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04
ASYMMETRIC BRAKING..... 32.05

[8] ABN-34 Navigation

[9] ■ ALL ADR OFF ■..... 34.02
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[10] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[11] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[12] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07

■ Stall Warning at Lift-Off ■ 80.07
TAILSTRIKE 80.08
VOLCANIC ASH ENCOUNTER 80.09
■ WINDSHEAR AHEAD ■ 80.10
■ WINDSHEAR ■ 80.10A
WINDSHIELD/WINDOW ARCING 80.11
WINDSHIELD/WINDOW CRACKED 80.12
ECAM Advisory Conditions 80.13
Tripped C/B Re-Engagement 80.14
Computer Reset 80.15
13 Computer Reset Table 80.16
■ EMERGENCY EVACUATION ■ 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC Navigation	2/4	8	Documentation update: Deletion of the "00010841.0008001 TCAS WARNINGS" documentary unit.
ABN-PLP-TOC ALL ADR OFF	2/4	9	Documentation update: Deletion of the "00010842.0042001 ALL ADR OFF" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	10	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	11	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	12	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	13	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-32 ASYMMETRIC BRAKING	32.05	2	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 ALL ADR OFF	34.02	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 TCAS WARNINGS	34.06	2	Documentation update: Addition of "TCAS WARNINGS" documentary unit
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.

Localization Title	Page	ID	Reason
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table- 25 - Equipment	80.16D	5	Documentation update: Addition of "Computer Reset Table- 25 - Equipment" documentary unit
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16F	6	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16F	7	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	ABCU	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.
(b) Crew oxygen valve inoperative.
(c) Lost, when speed is below 50 kt.
(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION..... RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR..... MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2..... OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2..... ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td>177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">177 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td><td>177 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.
- The destination EFOB turns to amber on the F.PLN (or on the FUEL PRED) page, or
- ″DEST EFOB BELOW MIN″ appears on the MCDU scratchpad.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD
The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

FUEL LEAK (Cont'd)

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

  ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER..... DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

2 Apply brake progressively on the available side. Counter swing with the rudder. Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

Intentionally left blank

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	*The altitude displayed on the PFD is a GPS altitude.*

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.

Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

1

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

  LDG GRVTY EXTN.....DOWN

CAUTION	*All gear doors remain open.*

- **WHEN L/G DOWNLOCKED:**

  L/G lever.....DOWN

  GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

  MAN V/S CTL.....FULL UP

CAUTION	Check that the outflow valve is fully open and that cabin altitude is at airfield elevation before opening the doors.

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET

ALL ADR OFF (Cont'd)

F/CTL PROT
ADR 1+2+3
RUD TRV LIM
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR ◁✻

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**
    Decrease pitch attitude and accelerate.
  - **When speed is above VLS, and vertical speed is positive:**
    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**
  Adjust the flight path or initiate a go-around.
- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**
  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.
- **“SINK RATE” “DON’T SINK”:**
  Adjust pitch attitude and thrust to silence the alert.
- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**
  Perform a go-around.
- **“GLIDE SLOPE”:**
  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

2

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "LEVEL OFF" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

- **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

To monitor speed, refer to IRS Ground Speed or GPS Ground Speed variations.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternates sources may be used to evaluate the air data:
  - *GPS altitude.*
  - *GPS and IRS ground speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified, or if all ADRs are affected:**

  - **When above FL 250:**

    ONE ADR.....KEEP ON

    TWO ADRs..... OFF

    This prevents the flight control laws from using two coherent but unreliable ADR data.

    For flight continuation, *Refer to Climb, Cruise and Descent tables.*

  - **When below FL 250, if speed still unreliable:**

    ALL ADRs P/B..... OFF

    All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

    SPD..... FLY THE GREEN

    NAV ADR 1+2+3 FAULT

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

7

DESCENT

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 250	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

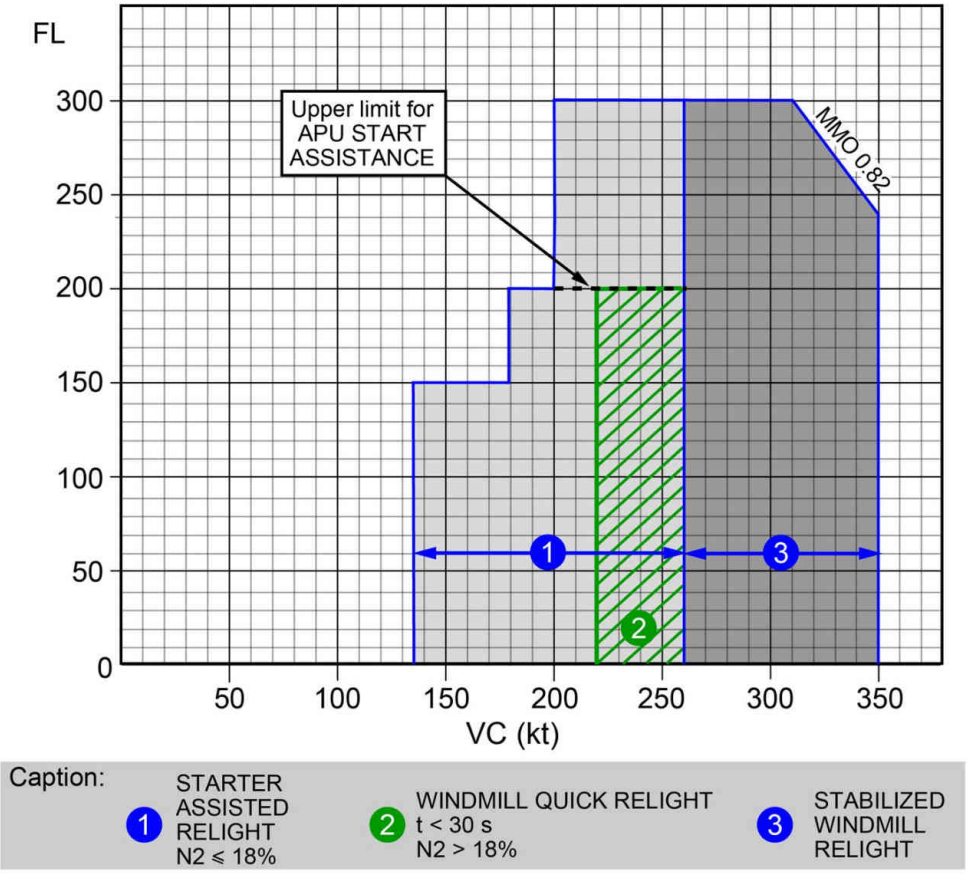
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**
ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**
ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**
THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**
Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

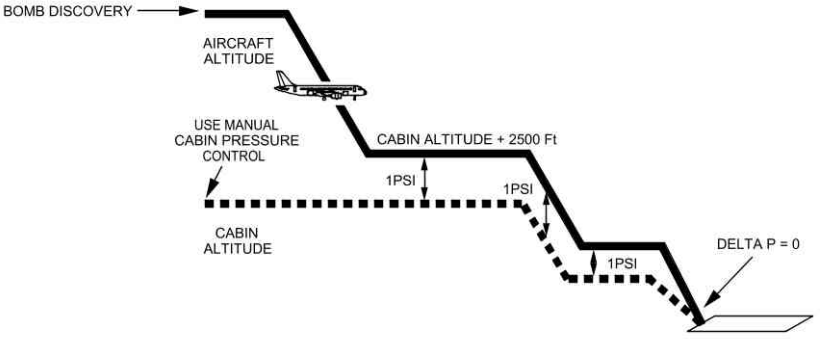
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON
    COMMERCIAL.....OFF

  FLAPS (fuel permitting).....AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL.....AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

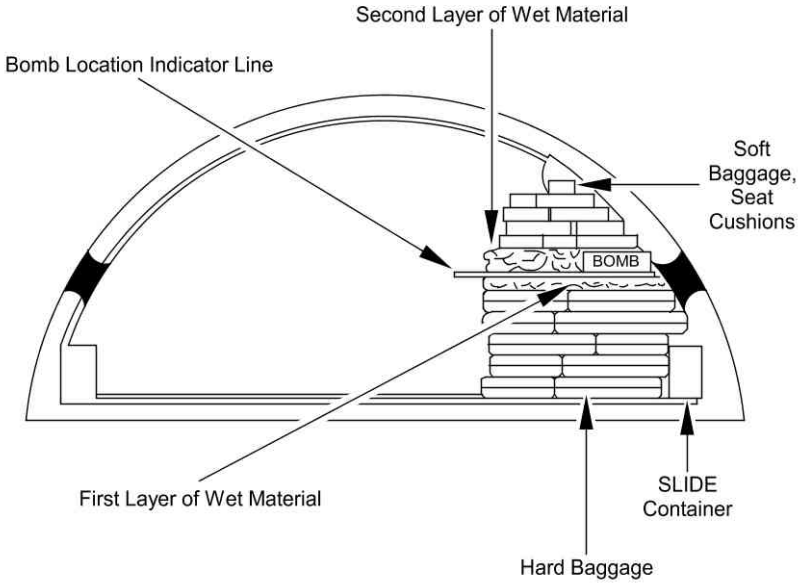
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⋘ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**Confirm if spurious:** - Check PA function - Check Cabin Interphone function - Check Cabin Lighting function If spurious, reset the CIDS when aircraft is self powered (APU or engine). **On ground or in flight:** - Pull the C/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and, M06 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁, P14 ◁. - After CIDS reset, wait approximately 4 min before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.
25	Flickering or total loss of the video camera display (on the SD) accompanied by the ″VIDEO NOT AVAIL″ message.	CDSS	**On ground, or in flight:** - Set the VIDEO rotary selector to OFF, on the center pedestal VIDEO panel - Set the COCKPIT DOOR VIDEO pb-sw to OFF, on the overhead panel - Wait 2 min, then - Set the COCKPIT DOOR VIDEO pb-sw back on, on the overhead panel - Wait 15 s, then - Set the VIDEO rotary selector to ″CKPT ENTRY″, on the center pedestal VIDEO panel.

5

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 5 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1 / 2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
6	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
7 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note: In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

[1] CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320E..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-PLP-TOC ACARS LANDING Fail Codes	1/2	1	Documentation update: Deletion of the "20803157.9001001 ACARS LANDING FAIL CODE - A321" documentary unit.
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	Documentation update: Addition of "LVO APPROACH & AUTOLAND" documentary unit
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-MISC WIND COMPONENT CHART - A320	1/2	1	Documentation update: Addition of "WIND COMPONENT CHART - A320" documentary unit
CP-FAIL ACARS LANDING FAIL CODE - A320E	1/2	1	Documentation update: Addition of "ACARS LANDING FAIL CODE - A320E" documentary unit

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

● REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

● DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

● CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

● SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

● PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

● BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

● PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

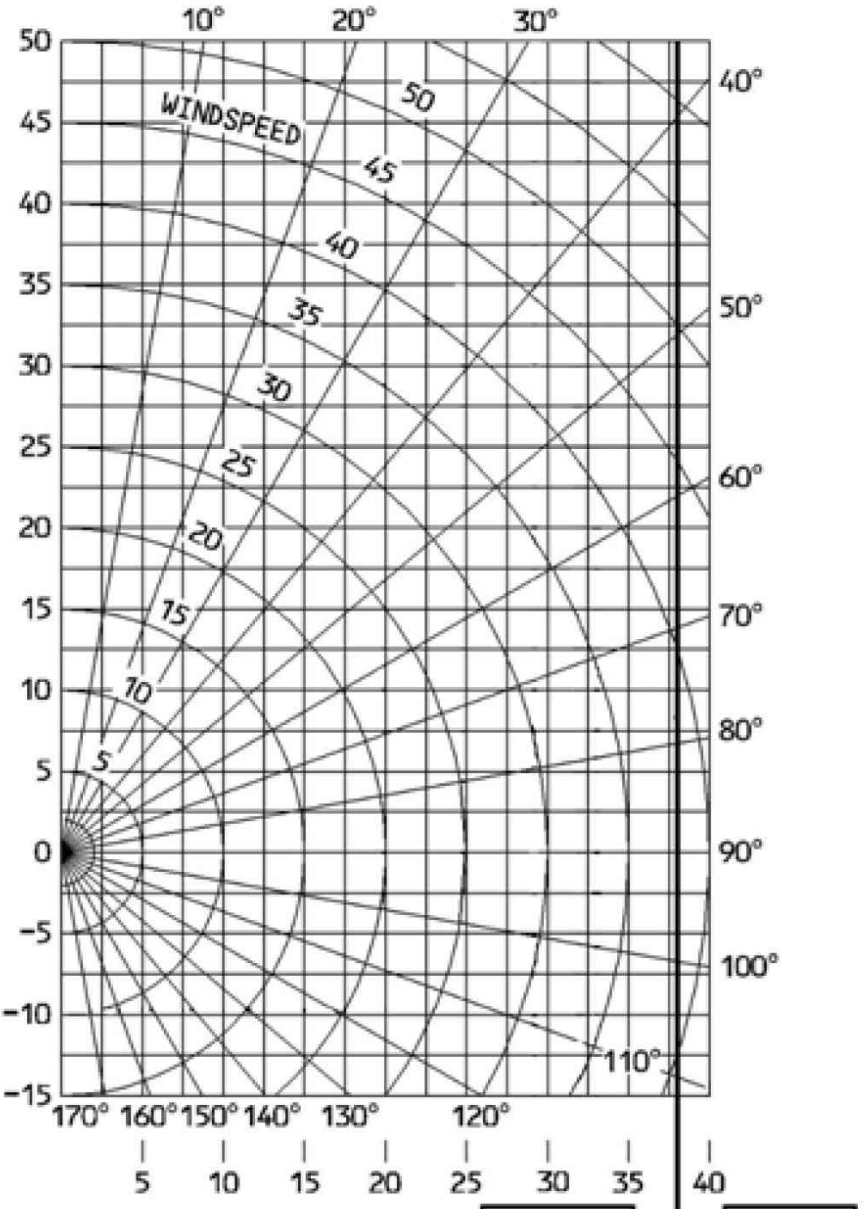
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320E

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	ONE BRK RELEASED		BRK02
	TWO BRK RELEASED		BRK03
	ALTN L(R) RELEASED (IF NORM BRK FAULT)		BRK04
	ALTN L(R) RELEASED (IF G SYS LO PR)		BRK05
	NORM BRK FAULT		BRK06
	NORM + ALTN FAULT		BRK07
NAV	IR 1+2+3 FAULT		NAV01
	DUAL IR FAULT/DUAL ADR FAULT		NAV02
	ALL ADR OFF		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)

CG ≥ 25 %

W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

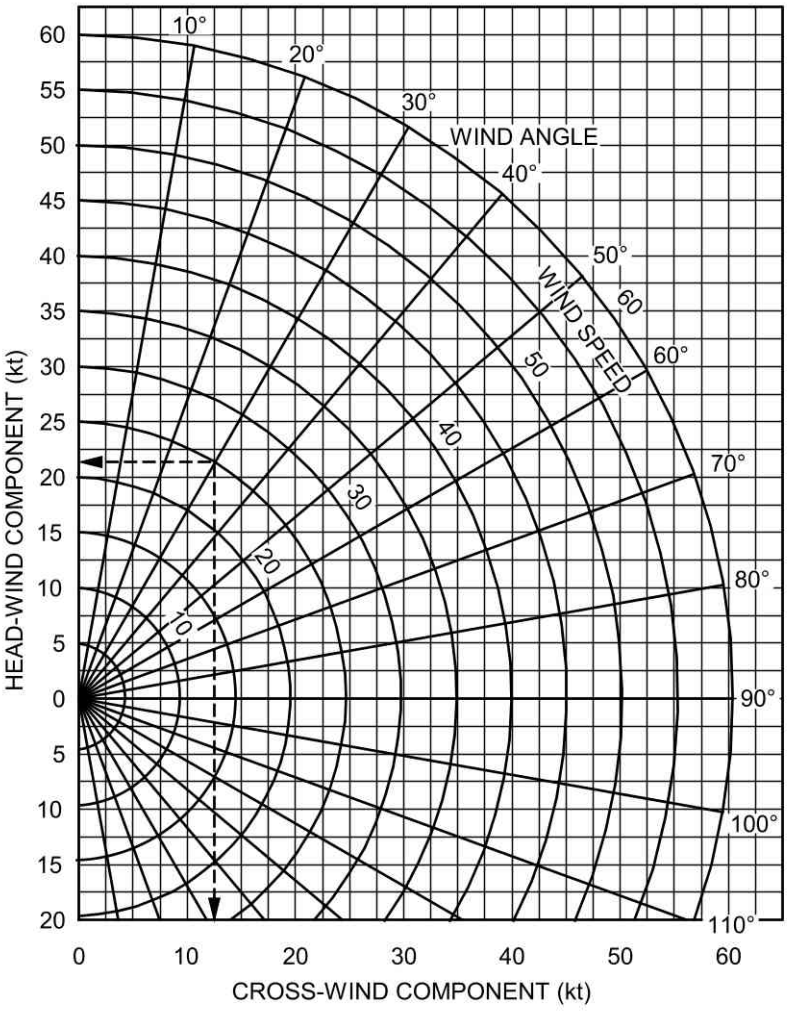
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
ONE BRK RELEASED	FULL	0	**1 260**	- 10	+ 50	+ 90	+ 50	+ 140	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 60	+ 90	+ 60	+ 150	+ 40	+ 40	- 40
TWO BRK RELEASED	FULL	0	**1 540**	- 20	+ 60	+ 100	+ 70	+ 180	+ 60	+ 60	- 60
	3	6	**1 730**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 70	- 70
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 200**	- 30	+ 100	+ 110	+ 110	+ 280	+ 80	+ 170	- 140
	3	6	**2 510**	- 40	+ 120	+ 130	+ 120	+ 310	+ 90	+ 220	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 300**	- 30	+ 110	+ 120	+ 110	+ 300	+ 80	+ 190	- 180
	3	6	**2 620**	- 30	+ 130	+ 150	+ 130	+ 320	+ 100	+ 240	- 230
NORM BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30
NORM + ALTN FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
ONE BRK RELEASED	FULL	0	**1 590**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 70	- 70
	3	6	**1 790**	- 20	+ 60	+ 140	+ 100	+ 260	+ 90	+ 90	- 90
TWO BRK RELEASED	FULL	0	**1 880**	- 20	+ 70	+ 130	+ 110	+ 290	+ 80	+ 110	- 120
	3	6	**2 150**	- 30	+ 80	+ 150	+ 130	+ 330	+ 100	+ 140	- 150
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 30	+ 90	+ 120	+ 120	+ 320	+ 80	+ 180	- 140
	3	6	**2 530**	- 40	+ 110	+ 150	+ 140	+ 340	+ 110	+ 230	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	- 30	+ 100	+ 150	+ 130	+ 350	+ 100	+ 220	- 180
	3	6	**2 700**	- 40	+ 120	+ 180	+ 160	+ 380	+ 120	+ 280	- 230
NORM BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80
NORM + ALTN FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
ONE BRK RELEASED	FULL	0	**1 860**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 110	+ 90	+ 230	+ 80	+ 120	- 150
TWO BRK RELEASED	FULL	0	**2 220**	- 20	+ 50	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 510**	- 30	+ 60	+ 130	+ 120	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 20	+ 100	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 530**	- 30	+ 110	+ 130	+ 130	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 440**	- 30	+ 80	+ 130	+ 120	+ 310	+ 90	+ 230	- 220
	3	6	**2 740**	- 30	+ 100	+ 160	+ 140	+ 330	+ 110	+ 270	- 280
NORM BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
NORM + ALTN FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
ONE BRK RELEASED	FULL	0	**2 060**	- 20	+ 50	+ 110	+ 90	+ 260	+ 70	+ 140	- 150
	3	6	**2 310**	- 20	+ 50	+ 120	+ 110	+ 270	+ 90	+ 170	- 190
TWO BRK RELEASED	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 130	+ 330	+ 90	+ 240	- 220
	3	6	**2 790**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 300	- 280
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 120	+ 340	+ 90	+ 240	- 210
	3	6	**2 780**	- 30	+ 70	+ 140	+ 150	+ 360	+ 110	+ 300	- 280
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 310	- 250
	3	6	**3 060**	- 30	+ 70	+ 170	+ 170	+ 390	+ 120	+ 390	- 330
NORM BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140
NORM + ALTN FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
ONE BRK RELEASED	FULL	0	**2 260**	- 30	+ 80	+ 150	+ 140	+ 380	+ 110	+ 190	- 170
	3	6	**2 650**	- 40	+ 90	+ 180	+ 180	+ 450	+ 130	+ 260	- 220
TWO BRK RELEASED	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 200	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 190	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 900**	- 40	+ 100	+ 190	+ 200	+ 500	+ 140	+ 390	- 280
	3	6	**3 440**	- 50	+ 130	+ 230	+ 270	+ 600	+ 180	+ 550	- 390
NORM BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170
NORM + ALTN FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
ONE BRK RELEASED	FULL	0	**3 330**	- 40	+ 80	+ 150	+ 240	+ 600	+ 140	+ 830	- 380
	3	6	**3 930**	- 50	+ 90	+ 190	+ 300	+ 650	+ 170	+ 1 090	- 510
TWO BRK RELEASED	FULL	0	**3 750**	- 50	+ 30	+ 190	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 230	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**3 750**	- 50	+ 30	+ 180	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 220	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**4 170**	- 50	+ 30	+ 210	+ 500	+ 870	+ 210	+ 2 060	- 320
	3	6	**5 010**	- 60	+ 30	+ 250	+ 630	+ 950	+ 250	+ 2 780	- 520
NORM BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420
NORM + ALTN FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
ALL ADR OFF	3	N/A	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
ALL ADR OFF	3	N/A	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
ALL ADR OFF	3	N/A	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
ALL ADR OFF	3	N/A	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
ALL ADR OFF	3	N/A	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
ALL ADR OFF	3	N/A	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

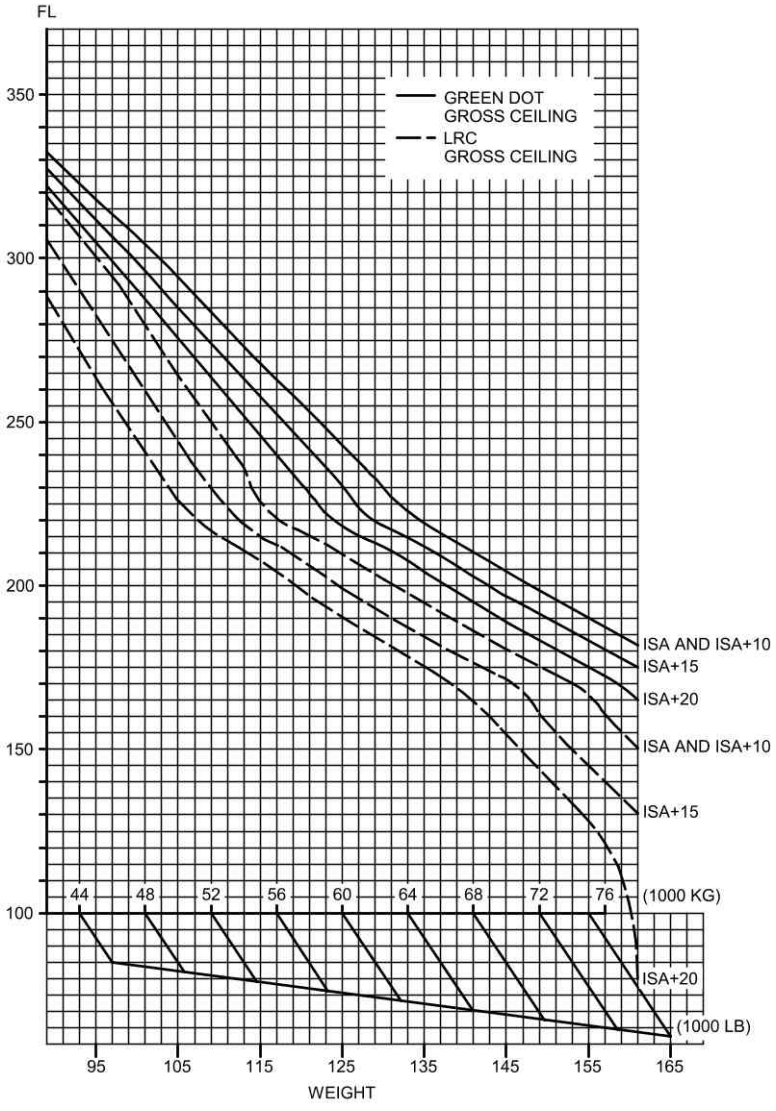
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

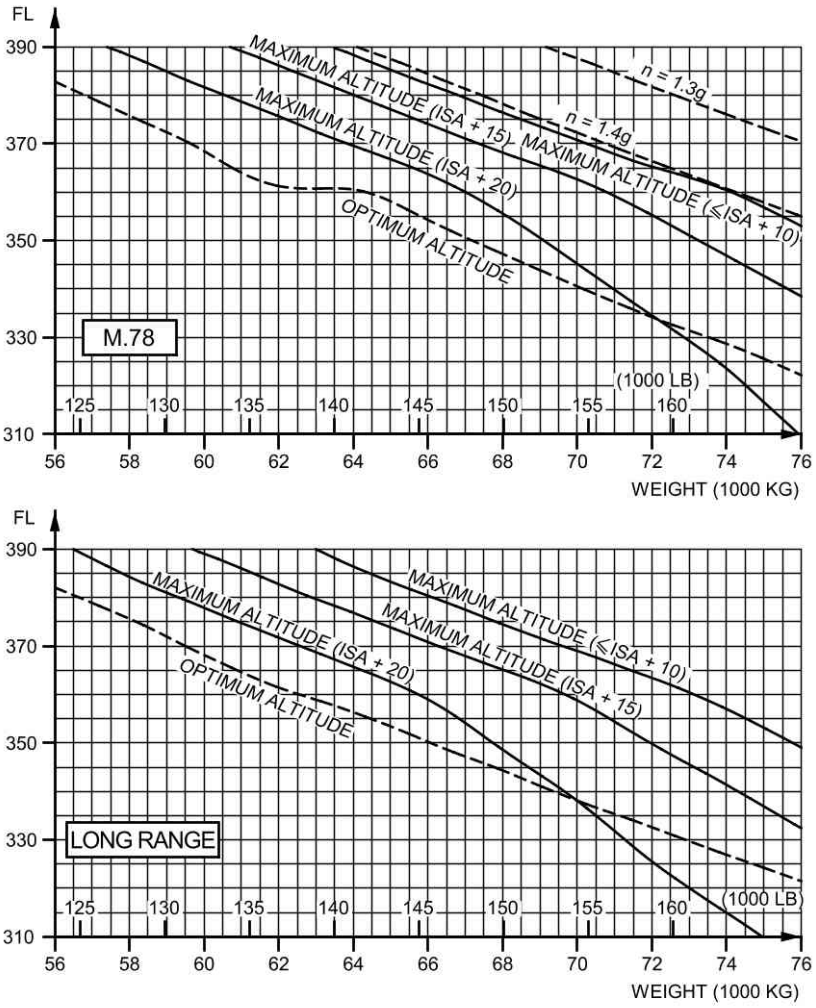
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING
△FUEL = – 0.4 %

ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or

- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

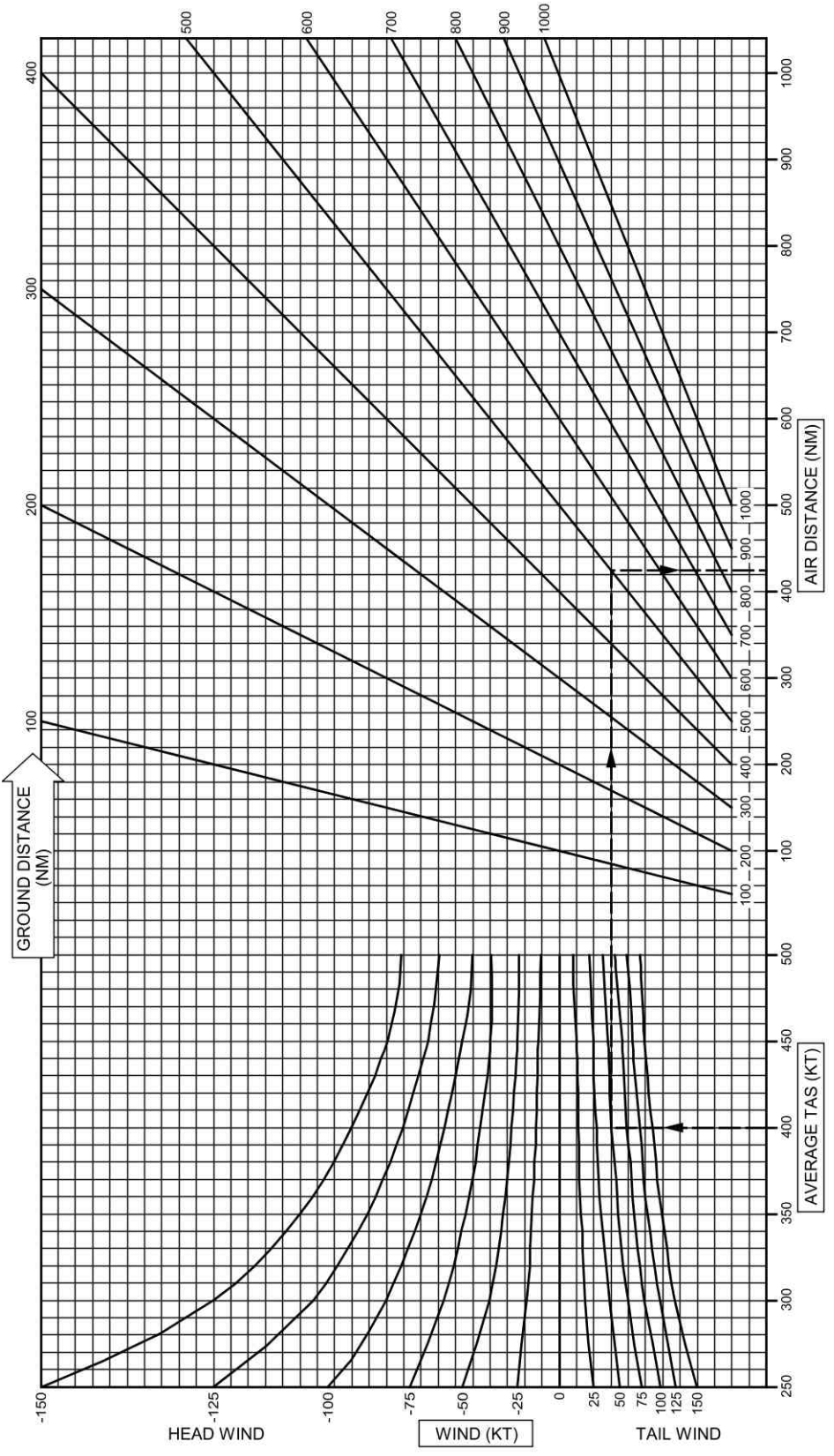
IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

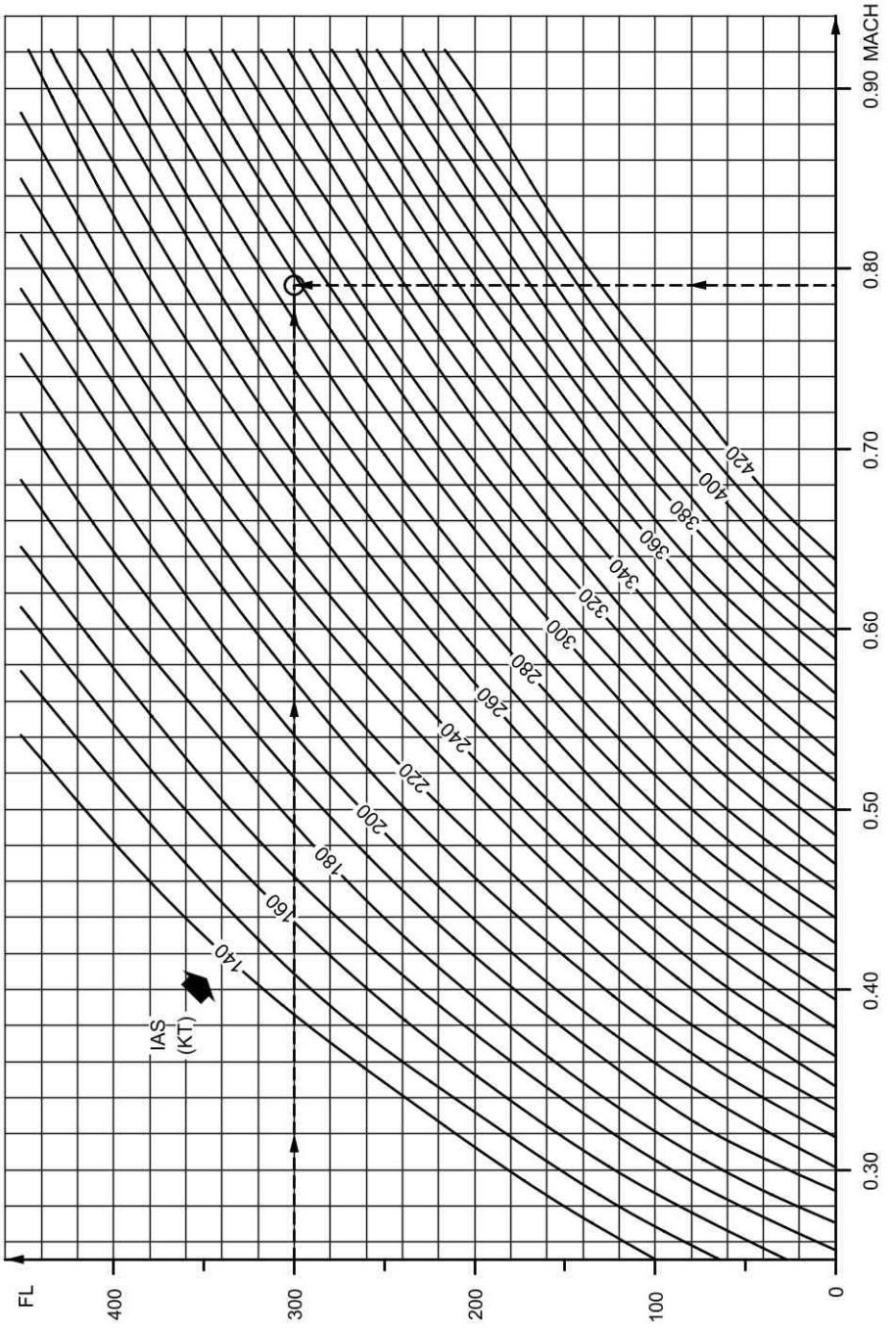
NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG = 25.0%		FUEL CONSUMED (KG) TIME (H.MIN)		
AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35
AIR CONDITIONING OFF △FUEL = – 1.5 %			**ENGINE ANTI ICE ON** △FUEL = + 3 %		**TOTAL ANTI ICE ON** △FUEL = + 6 %		

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

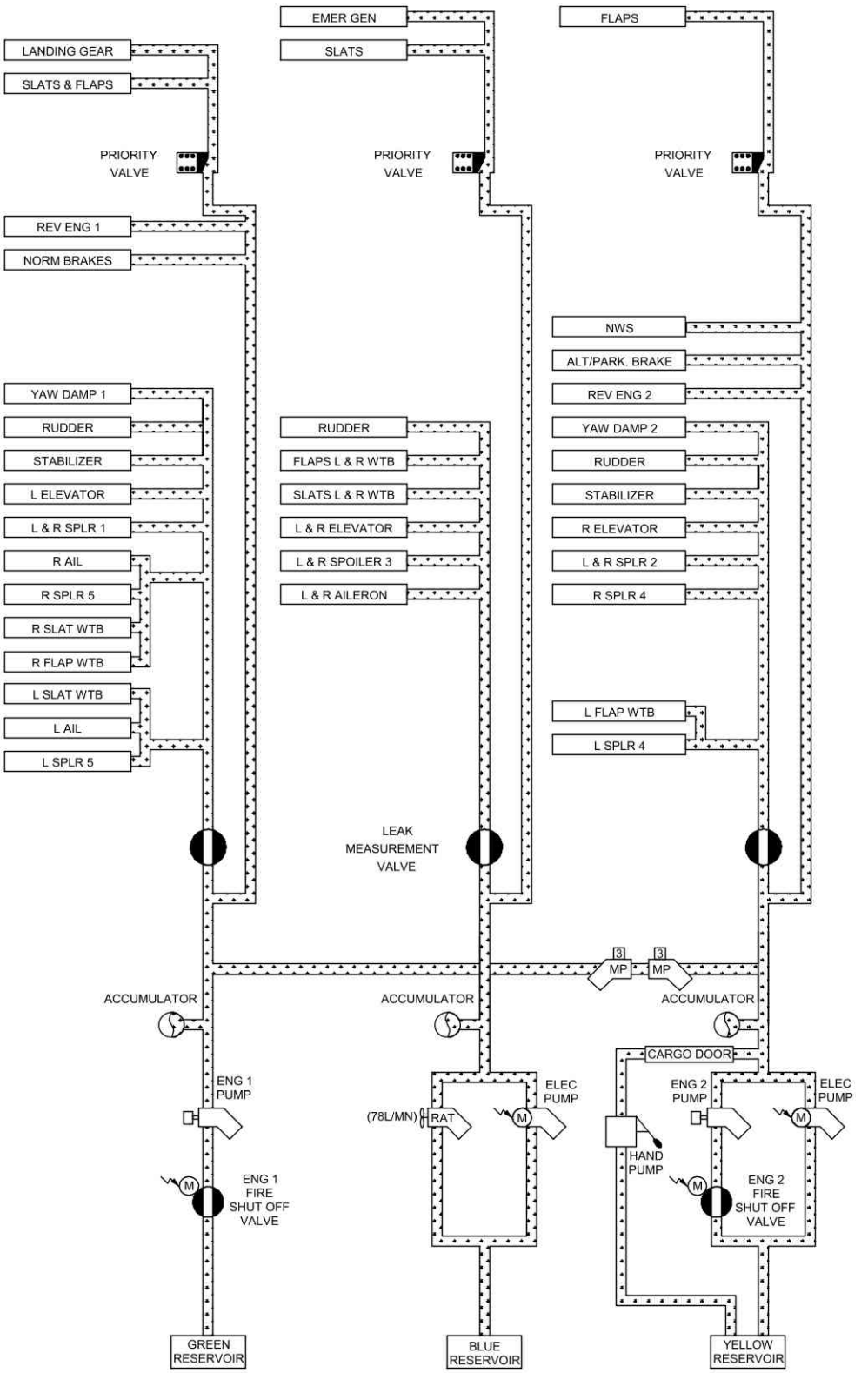
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

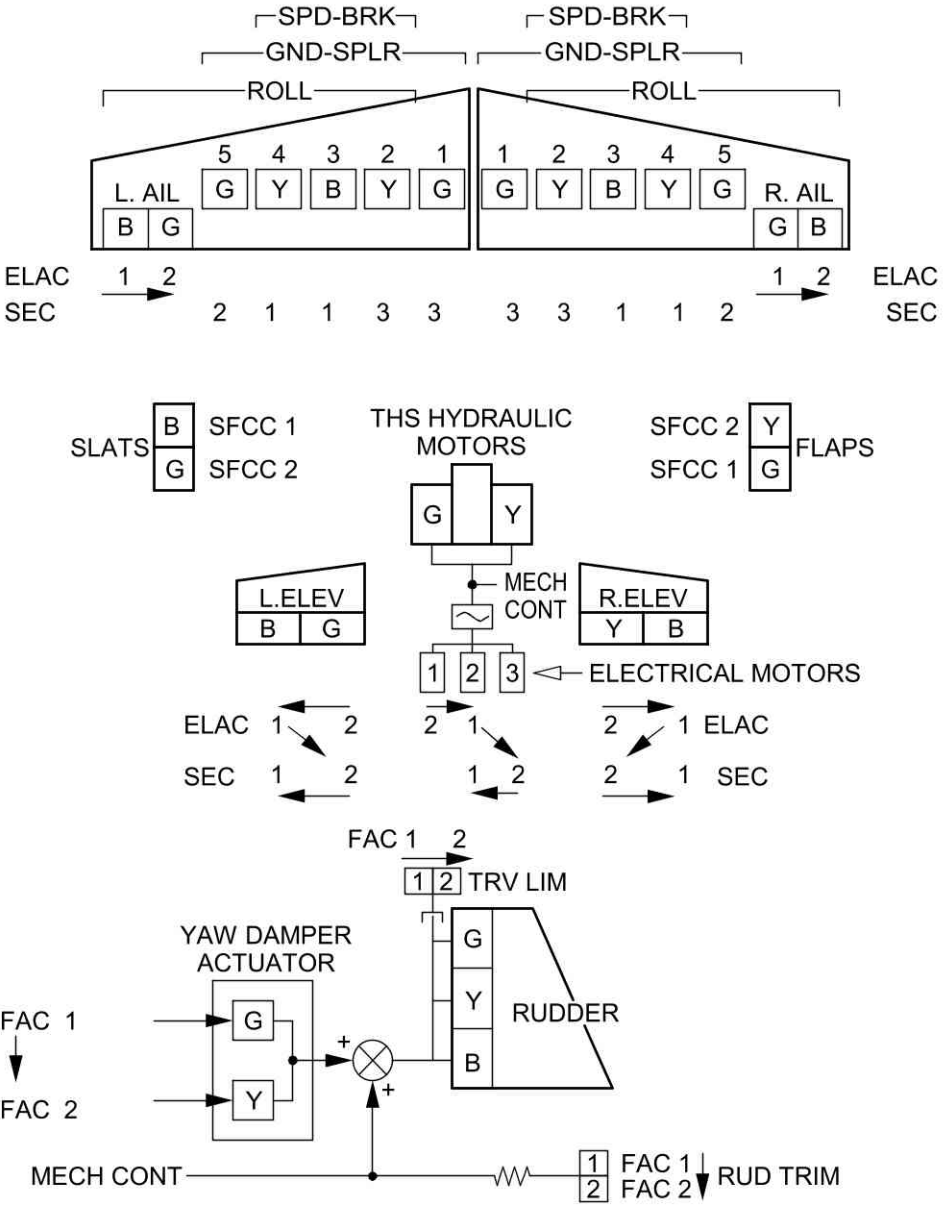
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-41 Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan

Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.00
Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HST**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HST**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HST**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HST**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HST**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HST**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB41 Issue 1.0
ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 204.
This OEB is issued to inform the operators of the following: Erroneous alternate (ALTN) fuel predictions are experienced when the flight crew modifies a company route (CO RTE) previously inserted in the alternate Flight Plan (F-PLN).
This OEB provides an explanation and operational recommendations in case of erroneous ALTN fuel predictions.

Applicable to: Aircraft with Honeywell FMGC Release 1A "H2" (MOD 38778, Airbus SB A320 22-1269 and MOD 38779, Airbus SB A320 22-1270)

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013616.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HST**				
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013617.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HST**				

ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

ECAM ENTRY

None

PROCEDURE

This OEB PROC N°41 is issued to provide flight crews with the following recommendations:
This procedure only applies when a CO RTE is used for ALTN F-PLN. In the case of ALTN fuel predictions erroneously set to zero further to a modification of this ALTN F-PLN:

ENTER manually a waypoint in the en-route F-PLN (neither in the departure, nor in the arrival), to start a new computation of ALTN fuel predictions
Maintain or delete the entered waypoint at convenience
Check the ALTN fuel predictions are correct

Intentionally left blank

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HST**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HST**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HST**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HST**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HSU

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-MISC **Miscellaneous**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12
OEBPROC-41 **Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	ALL	03 AUG 12
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HSU**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSU**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HSU**				
	OEB41 issue 1.0	W	N	03 AUG 12	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan
	Criteria: P10763 **Applicable to: B-HSU**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HSU**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HSU**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
E	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
M	OEBPROC-41	Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan	03 AUG 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
	ABN-31	**MULTIPLE UNDUE ECAM ALERTS**	00013755.0001001	03 AUG 12
	Criteria: 31A1220, 31-1276, P8671, P9824 **Applicable to: B-HSU** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Revision is issued to give a procedure to the crew in the case of multiple suspected undue ECAM alerts.*			

R	ABN-80	**Computer Reset Table**	NG00824	
E	ABN-80	**Computer Reset Table - 21 - Air Conditioning/Ventilation/Pressurization**	00013738.0001001	03 AUG 12
	Criteria: K10463 **Applicable to: B-HSU** *Impacted DU: NONE*			
E	ABN-80	**Computer Reset Table - 23 - Communications**	00013850.0024001	03 AUG 12
	Criteria: K12824, K12825, K3901, K8400, K9009, SA **Applicable to: B-HSU** *Impacted DU: 00010910 Computer Reset Table - 23 - Communications*			
	Reason for issue: *CIDS Director Hardware 333B and On Board Replacement Module (OBRM) 33A are sensitive to short power supply interruptions. These power supply interruptions occur when the aircraft is supplied by external power. As a consequence, ECAM caution "COM CIDS 1+2 FAULT" or CIDS Maintenance status 'CIDS 1' or 'CIDS 2' could be spuriously triggered. In such event, the flight crew should verify that the CIDS is functioning normally by checking the PA, Cabin Interphone and Cabin lighting function. If the ECAM caution is spurious, it can be removed by resetting the CIDS when the aircraft is powered by the APU.*			
N	ABN-80	**Computer Reset Table- 25 - Equipment**	00013739.0001001	03 AUG 12
	Criteria: K11047 **Applicable to: B-HSU** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit (TDU) provides Operators with the CDSS reset procedure in case of flickering or total loss of the video camera on the ECAM System Display (SD), accompanied by the VIDEO NOT AVAIL message.*			
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSU** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	5429	HDA 0062	B-HSU	320-232

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02
MULTIPLE UNDUE ECAM ALERTS..... 31.03

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04
ASYMMETRIC BRAKING..... 32.05

[8] ABN-34 Navigation

[9] ■ ALL ADR OFF ■..... 34.02
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[10] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[11] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[12] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07

■ Stall Warning at Lift-Off ■ 80.07
TAILSTRIKE 80.08
VOLCANIC ASH ENCOUNTER 80.09
■ WINDSHEAR AHEAD ■ 80.10
■ WINDSHEAR ■ 80.10A
WINDSHIELD/WINDOW ARCING 80.11
WINDSHIELD/WINDOW CRACKED 80.12
ECAM Advisory Conditions 80.13
Tripped C/B Re-Engagement 80.14
Computer Reset 80.15
13 Computer Reset Table 80.16
■ EMERGENCY EVACUATION ■ 80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC Navigation	2/4	8	Documentation update: Deletion of the "00010841.0008001 TCAS WARNINGS" documentary unit.
ABN-PLP-TOC ALL ADR OFF	2/4	9	Documentation update: Deletion of the "00010842.0042001 ALL ADR OFF" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	10	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	11	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	12	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	13	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
			Add of HF 1
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	Documentation update: Information "N.00010691.0001001.006" moved from "00010691.0001001" to "N.00010691.0001001.018"
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-32 ASYMMETRIC BRAKING	32.05	2	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 ALL ADR OFF	34.02	1	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 TCAS WARNINGS	34.06	2	Documentation update: Addition of "TCAS WARNINGS" documentary unit
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07A	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING	70.02A	1	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	2	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	3	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.

Localization Title	Page	ID	Reason
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table- 25 - Equipment	80.16D	5	Documentation update: Addition of "Computer Reset Table- 25 - Equipment" documentary unit
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16F	6	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16F	7	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop
HYD	FIRE VALVES	Norm	Norm	Norm

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	ABCU	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	ISIS	Norm	Norm	Norm
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.
(b) Crew oxygen valve inoperative.
(c) Lost, when speed is below 50 kt.
(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK UNUSABLE.
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  PACK FLOW..... HI

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 OR MEA:**

  APU MASTER SW (if in ELEC EMER CONFIG)... ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON-AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

  APU BLEED.....OFF
  BLOWER.....AUTO
  EXTRACT.....AUTO
  PACK 1.....OFF

  - **If smoke continues:**

    PACK 1.....ON
    PACK 2.....OFF

    - **If smoke still continues:**

      PACK 2.....ON
      BLOWER.....OVRD
      EXTRACT.....OVRD

  SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

  - **If smoke continues:**

    EMER EXIT LIGHT.....ON
    COMMERCIAL.....OFF
    SMOKE DISSIPATION.....CHECK
    FAULTY EQPT.....SEARCH/ISOLATE

    - **If smoke still continues or if faulty equipment confirmed isolated:**

      COMMERCIAL.....NORM

  SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION..... RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR..... MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2..... OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2..... ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">200 kt</td><td rowspan="3">185 kt</td><td rowspan="2">177 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td></tr>
<tr><td>S = 1</td><td rowspan="2">177 kt</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">200 kt</td><td>200 kt</td><td>185 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">177 kt</td><td>177 kt</td><td>177 kt</td><td>177 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON

- **On the lighter side and in the center tank:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS (WING + CTR)..... ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.
- The destination EFOB turns to amber on the F.PLN (or on the FUEL PRED) page, or
- ″DEST EFOB BELOW MIN″ appears on the MCDU scratchpad.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each inner tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK PUMP 1+2..... OFF
Each engine is fed via its associated inner tank only.
INNER TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each inner tank.

■ CASE 1: IF ONE INNER TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
CTR TK PUMP 1+2..... ON
FUEL LEAK..... MONITOR

● If leak stops:

If the inner tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

FUEL X FEED..... USE AS RQRD
The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

FUEL LEAK (Cont'd)

- **If leak continues (after engine shutdown):**

  The inner tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

  ENGINE RESTART.....CONSIDER

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2: IF BOTH INNER TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**

  APU (if ON).....OFF

  This prevents additional fuel loss through the APU feeding line.

- **When fuel quantity in one inner tank is less than 3 t (6 600 lb):**

  CTR TK PUMP 1+2.....ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or INVALID DATA message),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, ECAM DUs or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ DU is blank (with or without a large letter “F” in amber), or the display is distorted:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to the F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ INVALID DISPLAY UNIT message is displayed:

This may be caused by a DU failure.

FOR AUTOMATIC DU RECOVERY.....WAIT MORE THAN 40 s

DISPLAY UNIT FAILURE (Cont'd)

- **IF DU IS AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF DU IS NOT RECOVERED:**

  Non-recovered DU..... AS RQRD

  The DU can be switched off.

■ **INVALID DATA message appears (not on all DUs):**

EIS DMC SWITCHING..... AS RQRD

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.

■ **INVALID DATA message appears on all DUs:**

The autopilot, autothrust and MCDU navigation data are still available, and may be used.

FOR AUTOMATIC DUs RECOVERY ..... WAIT MORE THAN 40 s

- **IF ALL DUs ARE AUTOMATICALLY RECOVERED:**

  No crew action is required.

- **IF ONE OR MORE DUs ARE NOT RECOVERED:**

  Non-recovered DUs.....OFF FOR 40 s

  Non-recovered DUs..... BACK ON sequentially

  - **If the initial failure re-occurs (INVALID DATA message appears on all DUs), when switching a given DU back ON:**

    Apply the entire procedure again, from the beginning.

    Leave this specific DU permanently OFF.

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

MULTIPLE UNDUE ECAM ALERTS

In the case of multiple undue ECAM alerts concerning :
- ENG 1(2) N1(N2) (EGT) (FF) OVER LIMIT or
- ENG 1(2) N1(N2) (EGT) (EPR) (FF) DISCREPANCY or,
- NAV ATT(ALT) (HDG) DISCREPANCY or,
- NAV FM/GPS POS DISAGREE or,
- FUEL F.USED/FOB DISAGREE or,
- MINIMUM or HUNDRED ABOVE callouts,

possibly associated with EFIS red flags, apply the below procedure :

AFFECTED PARAMETERS.....CROSSCHECK

Crosscheck the affected parameters on the E/WD, PFD, ND or on the related SD page to confirm that the alerts are spurious.

- **If it is confirmed that the ECAM alerts are spurious, identify the faulty DMC :**

  EIS DMC SWITCH.....CAPT 3

  DMC 3 replaces DMC 1. If the undue alerts stop, DMC 1 is the faulty DMC.

  - **If unsuccessful :**

    EIS DMC SWITCH.....F/O 3

    DMC 3 replaces DMC 2. If the undue alerts stop, DMC 2 is the faulty DMC.

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

ASYMMETRIC BRAKING

Normal braking is faulty, or the green hydraulic system is in low pressure, and all brakes of one gear are released.

2 Apply brake progressively on the available side. Counter swing with the rudder. Avoid crosswind in excess of 10 knots from the side of the available brake.

- **If only one reverse is available:**

  Do not use Reverse on the side of the available brake.

LDG DIST PROC..... APPLY

Intentionally left blank

ALL ADR OFF

SPD.....FLY THE GREEN

Fly within the green area of the speed scale to ensure safe flight. For slats/flaps retraction, it is better to fly at the top of the green area of the speed scale.

CAUTION	*The altitude displayed on the PFD is a GPS altitude.*

BACK UP NAV..... USE

When ADRs are OFF, both FMs are lost.

Revert to Back Up Nav via the NAV B/UP prompt on the MCDU MENU page.

NAVAID TUNING..... USE RMP

Set both RMPs to NAV.

MANUAL CABIN PRESSURE CONTROL

MODE SEL..... MAN

MAN V/S CTL..... AS RQRD

MAN CAB PR CTL

TGT V/S : CLIMB 500 ft/min
DESC 300 ft/min

A/C GPS ALT	*CAB ALT TGT*
410	*8000*
350	*7000*
300	*5500*
250	*3000*
<200	*0*

1

FOR APPROACH

SPD.....FLY THE GREEN

Before extending the slats/flaps, it is better to fly at the bottom of the speed scale green area, and to be in straight flight.

FOR LDG.....USE FLAP 3

LDG DIST PROC.....APPLY

APPR SPD.....FLY THE BUG

During the approach, the bug indicates VAPP.

- **WHEN FLAP 2**

  LDG GRVTY EXTN.....DOWN

CAUTION	*All gear doors remain open.*

- **WHEN L/G DOWNLOCKED:**

  L/G lever.....DOWN

  GEAR DOWN indications..... CHECK

- **DURING FINAL APPROACH:**

  MAN V/S CTL.....FULL UP

CAUTION	Check that the outflow valve is fully open and that cabin altitude is at airfield elevation before opening the doors.

STATUS

INOP SYS

REAC W/S DET
PRED W/S DET

ALL ADR OFF (Cont'd)

F/CTL PROT
ADR 1+2+3
RUD TRV LIM
AP 1+2
A/THR
CAB PR 1+2
GPWS
GPWS TERR ◁✻

Other INOP SYS

RAT automatic extension
ATC ALTI MODE
TCAS
L/G RETRACT

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**
    Decrease pitch attitude and accelerate.
  - **When speed is above VLS, and vertical speed is positive:**
    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**
  Adjust the flight path or initiate a go-around.
- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**
  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.
- **“SINK RATE” “DON’T SINK”:**
  Adjust pitch attitude and thrust to silence the alert.
- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**
  Perform a go-around.
- **“GLIDE SLOPE”:**
  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN

- **MCDU INITIALIZATION:**

  DATA (MCDU KEY)..... PRESS
  The DATA INDEX page is displayed.
  IRS MONITOR (2L KEY)..... PRESS
  The IRS MONITOR page is displayed.
  A/C HEADING..... ENTER
  The flight crew must enter the heading in the SET HDG field (5R KEY).

TCAS WARNINGS

2

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "LEVEL OFF" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: Resolution Advisories (RA) are inhibited below 900 ft.

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
3	F	7.5 / 61.8	7.5 / 57.5	7.5 / 53.0
2	F	9.0 / 61.6	9.0 / 57.3	9.0 / 52.8
1 + F	S	4.5 / 60.2	4.5 / 56.1	4.5 / 51.2
1	S	7.5 / 58.0	7.5 / 53.9	7.5 / 48.9
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	250 kt	4.0 / 62.4	3.0 / 60.1	2.0 / 58.3
FL 200 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS

Respect Stall Warning.

To monitor speed, refer to IRS Ground Speed or GPS Ground Speed variations.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

■ **If at least one ADR is reliable:**

Faulty ADR(s).....OFF

REMAINING AIR DATA.....CONFIRM

Alternates sources may be used to evaluate the air data:

- *GPS altitude.*
- *GPS and IRS ground speeds, taking into account altitude and wind effect.*

■ **If affected ADR(s) cannot be identified, or if all ADRs are affected:**

■ **When above FL 250:**

ONE ADR.....KEEP ON

TWO ADRs..... OFF

This prevents the flight control laws from using two coherent but unreliable ADR data.

For flight continuation, *Refer to Climb, Cruise and Descent tables.*

■ **When below FL 250, if speed still unreliable:**

ALL ADRs P/B..... OFF

All ADRs must be switched OFF to replace the PFD's normal speed scale and altitude indication to the Back Up Speed Scale and GPS altitude indication.

SPD..... FLY THE GREEN

NAV ADR 1+2+3 FAULT

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
Above FL 320	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
FL 250 - FL 320	275 kt	3.0 / 73.4	2.0 / 71.6	1.5 / 70.2
Above FL 320	M 0.76	2.5 / 79.2	2.5 / 78.1	2.0 / 77.0

7

DESCENT

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 67 t	67 t - 57 t	Below 57 t
		Pitch (°) / Thrust (% N1)		
Above FL 320	M 0.76	-0.5 / IDLE	-1.0 / IDLE	-1.5 / IDLE
FL 320 - FL 250	275 kt	0.0 / IDLE	-0.5 / IDLE	-1.5 / IDLE

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 50 000 kg/110 000 lb	*-2.5*
60 000 kg/132 000 lb	*-1.5*
70 000 kg/154 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.2 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
78	*236*	*246*	*256*
76	*232*	*242*	*252*
72	*224*	*234*	*244*
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 600 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 ; L/G DOWN) will be approximately 1.2 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....150 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK..... ON

  ATC..... NOTIFY

  FIRE pushbutton (ENG and APU)..... PUSH

  AGENTS (ENG and APU)..... DISCH

  Engine Agent 2 is not available.
  - **If Evacuation required:**

    EVACUATION..... INITIATE

    ELT ◁ ..... CHECK EMITTING

    If not, switch on the transmitter.
  - **If Evacuation not required:**

    CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 150 KT

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

VAPP..... DETERMINE

Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENT (ENG and APU)..... DISCH

Engine Agent 2 is not available.

EVACUATION.....INITIATE

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

The flight crew should apply this paper procedure and then, if time permits, clear ECAM warnings and check the ECAM STATUS page.

THRUST LEVERS..... IDLE

FAC 1.....OFF THEN ON

Resetting FAC 1 also enables rudder trim recovery, even if no indication is available.

OPTIMUM SPEED.....220 KT/GREEN DOT

Initially, fly 220 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
68	*216*	*226*	*236*
64	*208*	*218*	*228*
60	*200*	*210*	*220*
56	*192*	*202*	*212*
52	*184*	*194*	*204*
48	*176*	*186*	*196*
44	*168*	*178*	*188*
40	*160*	*170*	*180*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 600 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

EMER ELEC POWER (if EMER GEN not in line).....MAN ON

VHF1/HF1 ◁ /ATC1.....USE

ATC.....NOTIFY

CREW OXY MASKS (Above FL 100).....ON

CABIN AND COCKPIT.....PREPARE

SIGNS.....ON

COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: Final descent slope, when configured (CONF 3/ L/G DOWN), will be approximately 1.2 N/m per 1 000 ft (with no wind).

BARO.....SET

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt.

Weight (1000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank..... PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever..... DOWN
    APPROACH SPEED..... ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 200 kt (max speed with slats extended).

GND SPLR..... ARM
MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN..... NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK..... ON
  ATC..... NOTIFY
  - **If Evacuation required :**
    EVACUATION..... INITIATE
    ELT ⊲ ..... CHECK EMITTING
    If not, switch on the transmitter
  - **If Evacuation not required :**
    CABIN CREW and PASSENGERS (PA)..... NOTIFY

1

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

MIN APPR SPEED..... 150 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 25 kt/150 kt:

Weight (1 000 kg)	*40*	*44*	*48*	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*78*
Vapp	*150*	*150*	*150*	*150*	*150*	*154*	*159*	*163*	*167*	*171*	*172*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell
If that causes a strong crosswind, ditch into the wind..
In all cases, touch down with a pitch attitude of approximately11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

2 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

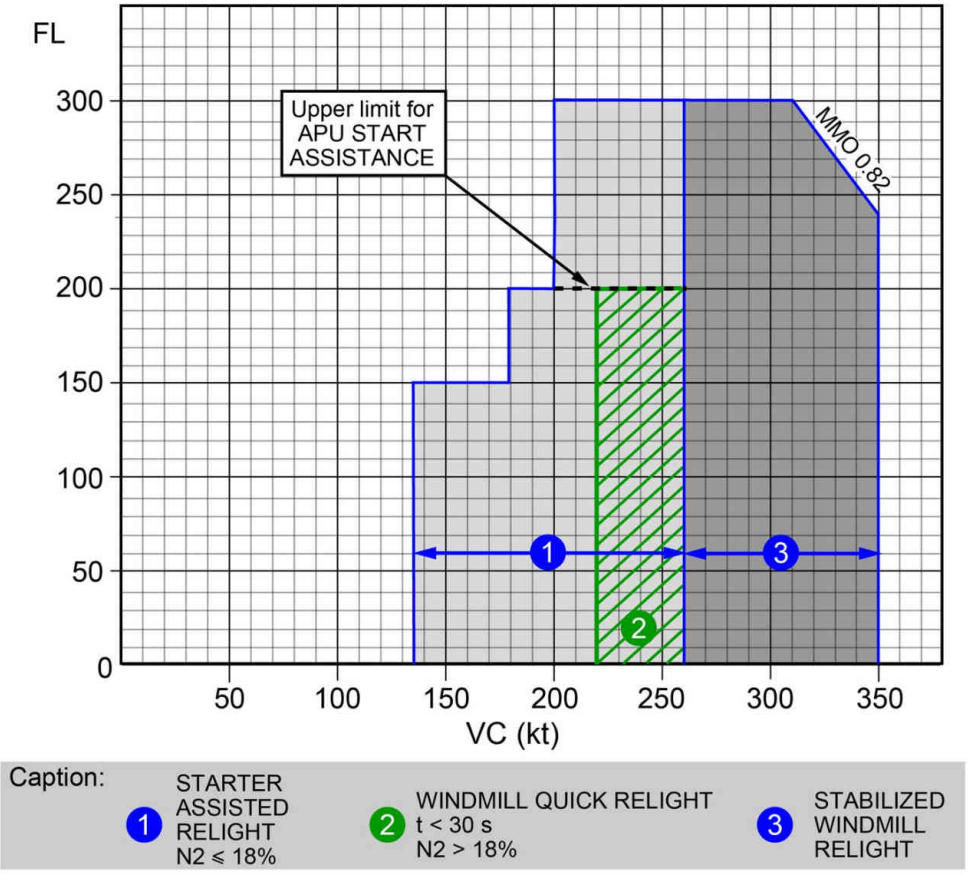
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

3

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	70.0	69.0	68.0	67.0	65.0	64.0	62.0	57.0
5	70.0	69.0	68.0	67.0	65.0	64.0	60.0	55.0
10	70.0	69.0	68.0	67.0	65.0	61.0	57.0	52.0
15	70.0	69.0	68.0	66.0	63.0	59.0	54.0	50.0
20	70.0	69.0	66.0	64.0	61.0	56.0	52.0	48.0
25	70.0	67.0	64.0	62.0	58.0	54.0	50.0	46.0
30	67.0	65.0	63.0	60.0	56.0	51.0	47.0	
35	65.0	62.0	60.0	57.0	53.0	49.0		
40	62.0	60.0	58.0	54.0				
45	59.0	57.0	55.0					
50	56.0	54.0						
55	53.0							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

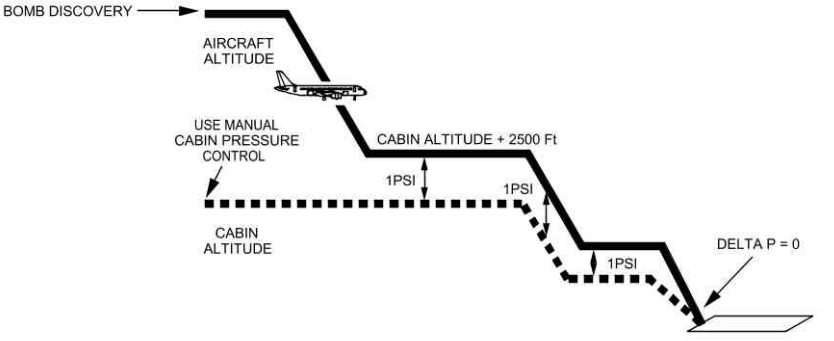
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

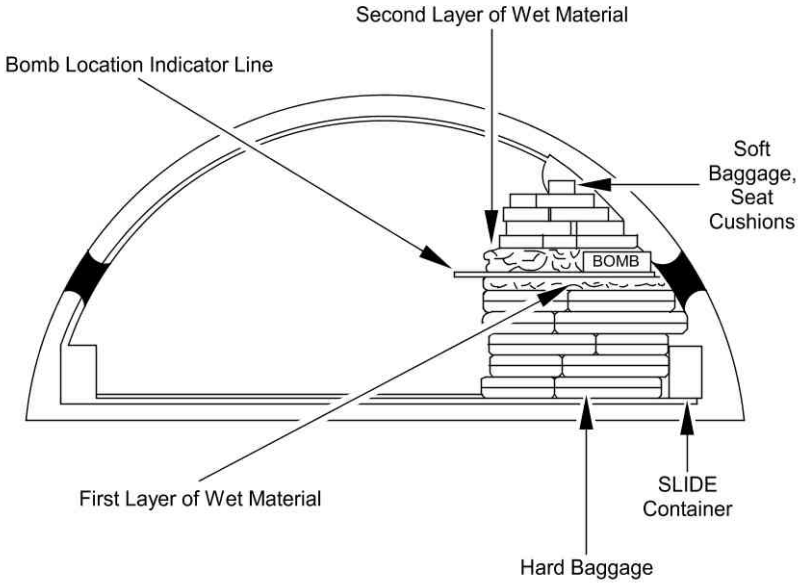
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⋘ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: For weights greater than 70 000 kg (or 154 000 lb), S speed is greater than VFE CONF 2 (200 kt). Consequently, on the FCU, the crew must select a speed below 200 kt before setting FLAPS 2. When in FLAPS 2, the crew can use managed speed again.

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	83	81	78	74	71	66	62	58
15	83	81	78	74	71	66	62	58
20	83	81	78	74	71	66	61	56
25	83	81	78	74	70	64	59	
30	83	81	78	73	67			
35	83	81	76	70	65			
40	83	80	73	67				
45	82	76	70					
50	79	73						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
PACK FLOW..... HI

Note: If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to QRH ABN 34 Unreliable Speed Indication/ADR Check Proc procedure.

Note: If all engines flame out and speed indications are lost,Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.
In case of engine failure, switch off the wing anti ice before engine restart.

Note: If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in inner cell, or 55 °C in outer cell	GALLEY (OFF)
	Fuel temp lower than -40 °C in inner or outer cell	Consider descending to a lower altitude and/or increasing Mach to increase TAT.
OXY	Cockpit oxygen bottle pressure < 600 PSI.	If mask is not being used, check if it is correctly stowed.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
	AIR PACK 1(2) REGUL FAULT	ACSC	**On ground only:** - Pull C/B W21 and W22 on 122VU - Pull C/B X21 and X22 on 122VU - Pull C/B Y18, Y20 and Y21 on 122VU - Pull C/B D8 on 49VU - Wait 5 s before pushing all the C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT and/or Loss of Passenger Address and/or Loss of Cabin Interphone	CIDS	**Confirm if spurious:** - Check PA function - Check Cabin Interphone function - Check Cabin Lighting function If spurious, reset the CIDS when aircraft is self powered (APU or engine). **On ground or in flight:** - Pull the C/Bs in the following order: P13 ◁ and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 and, M06 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M05, M06, G01, G02, P13 ◁ , P14 ◁ . - After CIDS reset, wait approximately 4 min before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M06 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M05 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M06, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP	**On ground, or in flight:** - Pull the C/Bs in the following order: H01 on 49VU, Q14 on 121VU. - Wait 10 s, then: - Push the C/Bs in the following order: Q14, H01.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
24	GPU cannot be connected to the aircraft	GAPCU	**On ground only:** The GPU cannot be connected to the electrical network of the aircraft (AVAIL light is OFF): • If at least one power source (IDG 1 or 2, APU GEN or batteries) is connected to the electrical network of the aircraft. - Reset the EXT PWR pb on 35VU (Press and release) • If no power source is connected to the electrical network of the aircraft. - Set the BAT 1 pb-sw and BAT 2 pb-sw to AUTO.
25	Flickering or total loss of the video camera display (on the SD) accompanied by the ″VIDEO NOT AVAIL″ message.	CDSS	**On ground, or in flight:** - Set the VIDEO rotary selector to OFF, on the center pedestal VIDEO panel - Set the COCKPIT DOOR VIDEO pb-sw to OFF, on the overhead panel - Wait 2 min, then - Set the COCKPIT DOOR VIDEO pb-sw back on, on the overhead panel - Wait 15 s, then - Set the VIDEO rotary selector to ″CKPT ENTRY″, on the center pedestal VIDEO panel.

5

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
26	SMOKE DET FAULT	CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE LAVATORY DET FAULT with all lavatories declared inoperative on the FAP	CIDS or CIDS-SDF	**On ground or in flight:** Apply the following actions in the presented order: - Pull the C/Bs P13 and P14 ◁ on 121VU, G01 and G02 on 49VU, M05 or M06 or M07 on 121VU. - Wait 5 s, then - Push the C/Bs in the following order: M05 or M06 and M06 or M07 on 121VU, G01 and G02 on 49VU, P13 and P14 ◁ ; on 121VU. **If unsuccessful, on ground only:** Apply the following actions in the presented order: - Pull the C/Bs C06 and C05 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.
	SMOKE FWD (AFT) CARGO DET FAULT SMOKE FWD (AFT) CRG 1 / 2 BTL FAULT	CIDS-SDF	**On ground:** Apply the following actions in the presented order: - Pull the C/Bs C05 and C06 on 49VU, T17 and T18 on 122VU. - Wait 5 s, then - Push simultaneously the C/Bs C05 and C06 on 49VU - Within 2 s push simultaneously the C/Bs T17 and T18 on 122VU.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
6	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
7 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication or Simultaneous triggering of FUEL L XFR VALVE CLOSED and FUEL R XFR VALVE CLOSED, although FUEL SD indicates no anomaly.	FQIC	**On ground, or in flight:** - Pull the 3 C/B: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) • Channel 1 and 2 (L26 on 121VU) - Wait 5 s, before pushing the 3 C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
	ISIS malfunction	ISIS	**On ground only:** With aircraft not moving: - Pull C/B F12 on 49VU, - Wait 5 s, then push the C/B, - Normal operation is expected after approximately 2 min. *Note: In the case of small aircraft motion during the C/B reset (refueling, cargo loading conditions, etc.), the ATT red flag may appear on the ISIS. In this case, press the RST P/B for 2 s, and wait 2 min to recover normal operation.*
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A320..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A320E..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	Documentation update: Addition of "LVO APPROACH & AUTOLAND" documentary unit
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**07 Sep 2012 : Modification of content of the element 71503147.9001001**
			04 Oct 2012 : Modification of content of the element 71503147.9001001
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-MISC WIND COMPONENT CHART - A320	1/2	1	Documentation update: Addition of "WIND COMPONENT CHART - A320" documentary unit
CP-FAIL ACARS LANDING FAIL CODE - A320E	1/2	1	Documentation update: Addition of "ACARS LANDING FAIL CODE - A320E" documentary unit

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits: AUTOLAND and MANUAL LAND (HWC30 / TWC10 / XWC20)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

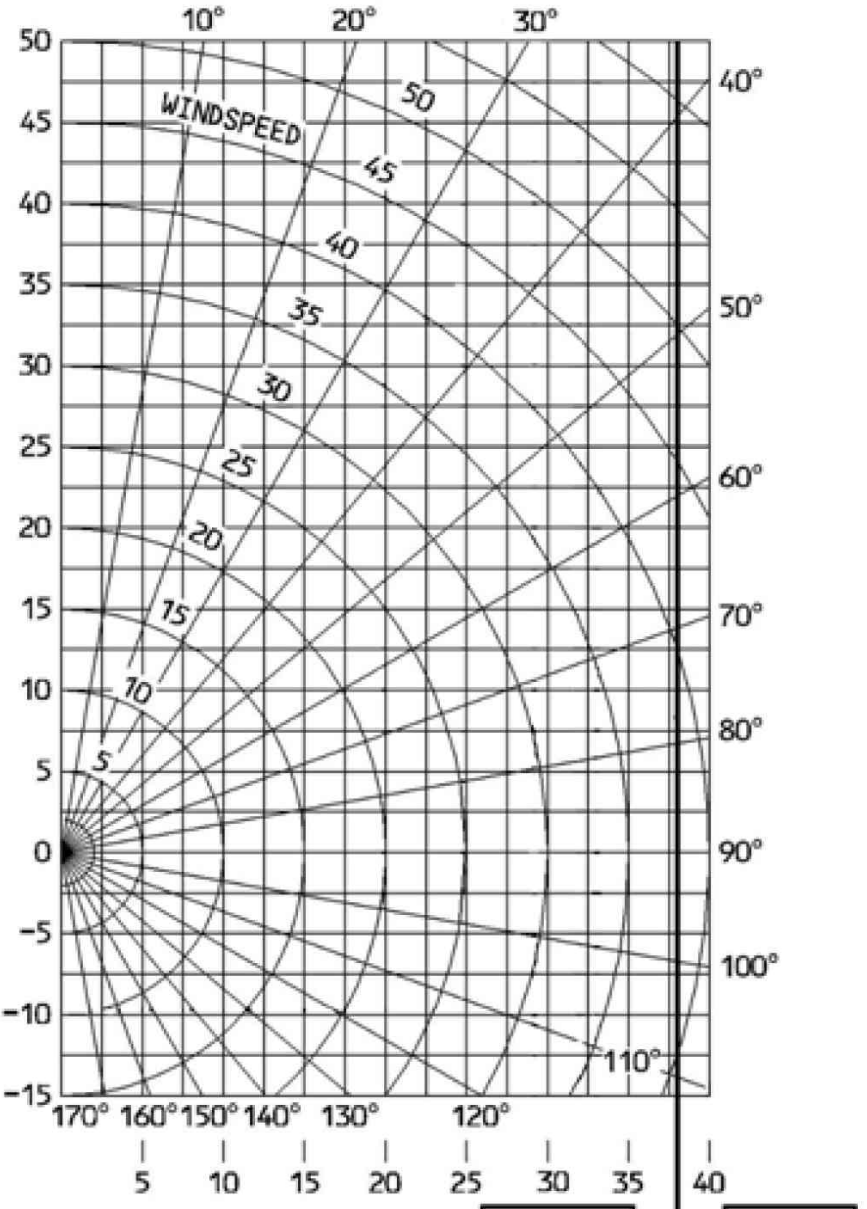
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A320



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A320E

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	ONE BRK RELEASED		BRK02
	TWO BRK RELEASED		BRK03
	ALTN L(R) RELEASED (IF NORM BRK FAULT)		BRK04
	ALTN L(R) RELEASED (IF G SYS LO PR)		BRK05
	NORM BRK FAULT		BRK06
	NORM + ALTN FAULT		BRK07
NAV	IR 1+2+3 FAULT		NAV01
	DUAL IR FAULT/DUAL ADR FAULT		NAV02
	ALL ADR OFF		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings.....1/4
Gross Flight Path Descent at Green Dot Speed..... 2/4
Cruise at Long Range Cruise Speed..... 3/4
In Cruise Quick Check Long Range.....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes..... 1/4
In Cruise Quick Check at a Given Mach Number.....2/4
Cost Index for Long Range Cruise Speed.....2/4
Standard Descent.....3/4
Quick Determination Table of Alternate Flight Planning.....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range..... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion..... 1/2
IAS / MACH Conversion..... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT) CG ≥ 25 %					
W (1000 KG)	F	S	Green dot FL < 200 (1)	VLS CONF 3	VREF
40	117	152	160	109	106
44	122	159	168	114	111
48	128	166	176	119	116
52	133	173	184	124	121
56	138	179	192	128	125
60	143	185	200	133	129
64	148	192	208	137	134
68	152	197	216	142	138
72	157	203	224	146	142
76	161	209	232	150	146
78	163	211	236	152	147

(1) Above FL 200 add 1 kt per additional 1 000 ft.

For CG < 25 % add 2 kt to VLS and VREF

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

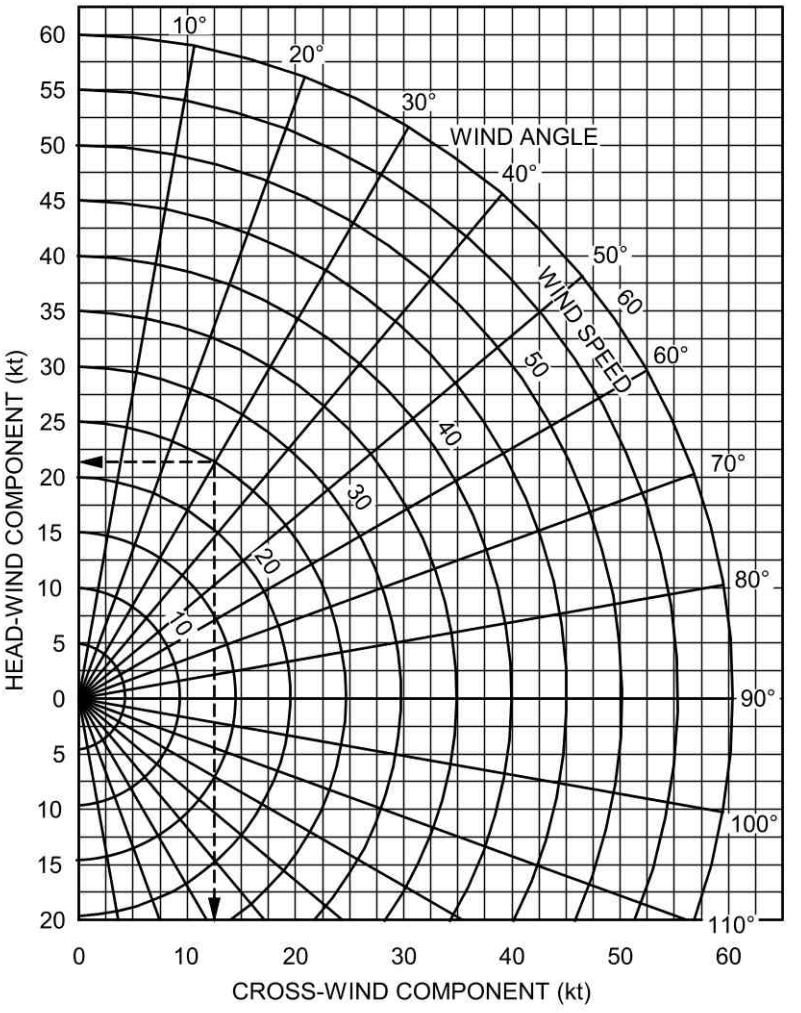
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS											
Weight (T)	40	42	46	50	54	58	62	66	70	74	78
VLS CONF FULL (kt) (=VREF)	106	109	114	119	123	127	132	136	140	144	147
VLS CONF3 (kt)	109	112	117	122	126	131	135	140	144	148	152

For CG < 25%, add 2kt to VLS CONF FULL and VLS CONF 3

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 080**	- 10	+ 40	+ 60	+ 40	+ 130	+ 30	+ 20	- 20
AUTOBRAKE MED	**1 360**	- 10	+ 30	+ 90	+ 50	+ 130	+ 50	+ 10	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 240 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 130**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
AUTOBRAKE MED	**1 430**	- 10	+ 40	+ 90	+ 50	+ 140	+ 40	+ 10	0
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 510 m**
Autoland	**+ 310 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 370**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	- 50
AUTOBRAKE MED	**1 420**	- 10	+ 50	+ 100	+ 70	+ 200	+ 60	+ 40	0
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 70	+ 210	+ 60	+ 20	- 10

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 300 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 480**	- 20	+ 60	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 540**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 20
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 20	- 10

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 390 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 600**	- 10	+ 40	+ 80	+ 70	+ 180	+ 50	+ 60	- 90
AUTOBRAKE MED	**1 630**	- 10	+ 40	+ 90	+ 60	+ 180	+ 60	+ 70	- 100
AUTOBRAKE LOW	**1 940**	- 20	+ 50	+ 130	+ 80	+ 210	+ 60	+ 30	- 10

Overweight Ldg proc	**+ 380 m**
Autoland	**+ 290 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 720**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 110
AUTOBRAKE MED	**1 760**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 120
AUTOBRAKE LOW	**2 050**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 470 m**
Autoland	**+ 380 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 770**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 110
AUTOBRAKE MED	**1 800**	- 20	+ 40	+ 90	+ 80	+ 210	+ 60	+ 90	- 120
AUTOBRAKE LOW	**1 980**	- 20	+ 50	+ 130	+ 80	+ 230	+ 70	+ 70	- 20

Overweight Ldg proc	**+ 370 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 920**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 110	- 140
AUTOBRAKE MED	**1 960**	- 20	+ 50	+ 100	+ 80	+ 220	+ 70	+ 110	- 150
AUTOBRAKE LOW	**2 110**	- 20	+ 50	+ 140	+ 90	+ 230	+ 70	+ 90	- 40

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 400 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 950**	- 20	+ 70	+ 140	+ 120	+ 330	+ 90	+ 130	- 120
AUTOBRAKE MED	**1 970**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 140
AUTOBRAKE LOW	**2 010**	- 20	+ 70	+ 140	+ 120	+ 340	+ 90	+ 130	- 20

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 360 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 200**	- 30	+ 80	+ 170	+ 150	+ 380	+ 110	+ 170	- 160
AUTOBRAKE MED	**2 220**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 170	- 180
AUTOBRAKE LOW	**2 250**	- 30	+ 80	+ 180	+ 150	+ 390	+ 110	+ 180	- 60

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 950**	- 30	+ 70	+ 140	+ 180	+ 490	+ 120	+ 540	- 230
AUTOBRAKE MED	**2 970**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 530	- 250
AUTOBRAKE LOW	**3 000**	- 30	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 240

Overweight Ldg proc	**+ 310 m**
Autoland	**+ 370 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 380**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 330
AUTOBRAKE MED	**3 410**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 350
AUTOBRAKE LOW	**3 440**	- 40	+ 80	+ 170	+ 220	+ 530	+ 140	+ 690	- 360

Overweight Ldg proc	**+ 390 m**
Autoland	**+ 490 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF

Weight (T)		40	42	46	50	54	58	62	66	70	74	78
VREF = VLS CONF FULL (kt)	CG < 25%	108	111	116	121	125	130	134	138	142	146	149
	CG ≥ 25%	106	109	114	119	123	128	132	136	140	144	147

+

ΔVREF

Refer to the applicable Landing Distance table

+

APPRoach **COR**rection

ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP

VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (SPD column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
DC BUS 2 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 290**	- 10	+ 50	+ 90	+ 50	+ 130	+ 40	+ 30	- 40
DC BUS 1+2 FAULT	FULL	0	**1 720**	- 20	+ 70	+ 120	+ 70	+ 190	+ 60	+ 80	INOP
	3	6	**1 900**	- 20	+ 90	+ 120	+ 80	+ 210	+ 60	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 820**	- 10	+ 70	+ 110	+ 80	+ 200	+ 60	+ 80	INOP
	3	6 / 140kt	**1 900**	- 10	+ 90	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**1 940**	- 10	+ 90	+ 110	+ 80	+ 200	+ 70	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 80
DC BUS 2 FAULT	FULL	0	**1 660**	- 20	+ 60	+ 150	+ 100	+ 250	+ 80	+ 80	- 100
	3	6	**1 840**	- 20	+ 70	+ 170	+ 120	+ 280	+ 90	+ 100	- 120
DC BUS 1+2 FAULT	FULL	0	**1 840**	- 20	+ 80	+ 160	+ 100	+ 270	+ 90	+ 110	INOP
	3	6	**2 050**	- 30	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 460**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 50	- 60
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 70	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 640**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 80
	3	16	**1 830**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 70	- 100
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 950**	- 10	+ 80	+ 150	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 060**	- 10	+ 80	+ 170	+ 120	+ 300	+ 90	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 110**	- 10	+ 80	+ 170	+ 120	+ 290	+ 90	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 100
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
DC BUS 2 FAULT	FULL	0	**1 930**	- 20	+ 40	+ 130	+ 80	+ 220	+ 70	+ 110	- 170
	3	6	**2 100**	- 20	+ 40	+ 140	+ 90	+ 220	+ 70	+ 130	- 200
DC BUS 1+2 FAULT	FULL	0	**1 940**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 120**	- 20	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 720**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 130
	3	6	**1 890**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 160
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 880**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 140
	3	16	**2 070**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 180
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 040**	- 10	+ 50	+ 130	+ 90	+ 230	+ 80	+ 120	INOP
	3	6 / 140kt	**2 120**	- 10	+ 60	+ 140	+ 90	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 160**	- 10	+ 60	+ 130	+ 100	+ 220	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 130
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
DC BUS 2 FAULT	FULL	0	**2 160**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 220
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 270	+ 80	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 200**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 420**	- 20	+ 50	+ 160	+ 110	+ 270	+ 90	+ 200	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 120	- 180
	3	6	**2 140**	- 20	+ 50	+ 120	+ 90	+ 250	+ 80	+ 140	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 100**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 120	- 200
	3	16	**2 330**	- 20	+ 50	+ 120	+ 100	+ 250	+ 90	+ 140	- 250
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 310**	- 10	+ 50	+ 130	+ 110	+ 270	+ 80	+ 180	INOP
	3	6 / 140kt	**2 430**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 200	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 430**	- 10	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 190
DC BUS 2 FAULT	FULL	0	**2 470**	- 30	+ 90	+ 220	+ 180	+ 440	+ 140	+ 260	- 260
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 530	+ 170	+ 360	- 330
DC BUS 1+2 FAULT	FULL	0	**2 530**	- 30	+ 90	+ 230	+ 190	+ 480	+ 140	+ 290	INOP
	3	6	**2 960**	- 40	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 160**	- 30	+ 80	+ 170	+ 140	+ 390	+ 110	+ 180	- 200
	3	6	**2 530**	- 30	+ 90	+ 200	+ 180	+ 460	+ 140	+ 250	- 270
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 400**	- 30	+ 80	+ 160	+ 150	+ 390	+ 120	+ 190	- 240
	3	16	**2 820**	- 40	+ 90	+ 190	+ 200	+ 460	+ 150	+ 270	- 330
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 680**	- 10	+ 90	+ 200	+ 190	+ 490	+ 150	+ 300	INOP
	3	6 / 140kt	**2 970**	- 10	+ 110	+ 280	+ 250	+ 580	+ 180	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 960**	- 20	+ 110	+ 240	+ 220	+ 480	+ 170	+ 340	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 260
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 380
DC BUS 2 FAULT	FULL	0	**3 960**	- 40	+ 70	+ 210	+ 270	+ 650	+ 170	+ 1 210	- 750
	3	6	**4 650**	- 50	+ 80	+ 250	+ 330	+ 720	+ 190	+ 1 570	- 1 010
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**3 700**	- 30	+ 30	+ 170	+ 220	+ 740	+ 160	+ 1 610	- 990
	3	6	**4 380**	- 30	+ 30	+ 210	+ 270	+ 790	+ 190	+ 2 060	- 1 310
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**3 940**	- 30	+ 30	+ 170	+ 230	+ 740	+ 170	+ 1 610	- 1 030
	3	16	**4 680**	- 30	+ 30	+ 190	+ 290	+ 800	+ 190	+ 2 070	- 1 380
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**4 380**	- 30	+ 100	+ 230	+ 310	+ 610	+ 190	+ 1 070	INOP

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 220**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 190**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
THREE SPLR FAULT	FULL	0	**1 230**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 30
	3	6	**1 300**	- 10	+ 40	+ 90	+ 50	+ 120	+ 40	+ 30	- 40
ALL SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
GND SPLR FAULT	FULL	0	**1 340**	- 10	+ 40	+ 120	+ 50	+ 130	+ 50	+ 40	- 50
	3	6	**1 410**	- 10	+ 40	+ 110	+ 60	+ 130	+ 40	+ 40	- 50
SEC 1 or SEC 3 FAULT	FULL	0	**1 150**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 230**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
SEC 2 FAULT	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
SEC 2+3 FAULT	FULL	0	**1 220**	- 10	+ 40	+ 90	+ 40	+ 120	+ 40	+ 30	- 30
	3	6	**1 290**	- 10	+ 40	+ 90	+ 50	+ 130	+ 40	+ 30	- 30
SEC 1+3 FAULT	FULL	0	**1 280**	- 10	+ 40	+ 100	+ 50	+ 120	+ 40	+ 30	- 40
	3	6	**1 350**	- 10	+ 40	+ 100	+ 50	+ 130	+ 40	+ 30	- 50
SEC 1+2 FAULT	FULL	0	**1 180**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 20	- 30
	3	6	**1 260**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30
RUDDER JAM	FULL	0	**1 240**	- 10	+ 60	+ 100	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 390**	- 20	+ 60	+ 110	+ 70	+ 150	+ 50	+ 40	- 30
SEC 1+2+3 FAULT	3	10	**1 470**	- 10	+ 40	+ 110	+ 60	+ 130	+ 50	+ 40	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 500**	- 20	+ 50	+ 120	+ 80	+ 210	+ 70	+ 60	- 60
	3	6	**1 670**	- 20	+ 60	+ 130	+ 100	+ 240	+ 70	+ 70	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 750**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 600**	- 20	+ 60	+ 140	+ 90	+ 240	+ 70	+ 70	- 70
	3	6	**1 770**	- 20	+ 60	+ 150	+ 110	+ 260	+ 80	+ 90	- 90
THREE SPLR FAULT	FULL	0	**1 680**	- 20	+ 60	+ 160	+ 100	+ 250	+ 80	+ 90	- 90
	3	6	**1 860**	- 20	+ 70	+ 180	+ 120	+ 280	+ 90	+ 110	- 110
ALL SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
GND SPLR FAULT	FULL	0	**1 920**	- 20	+ 70	+ 220	+ 130	+ 300	+ 100	+ 140	- 130
	3	6	**2 110**	- 30	+ 80	+ 250	+ 150	+ 330	+ 110	+ 170	- 150
SEC 1 or SEC 3 FAULT	FULL	0	**1 520**	- 20	+ 50	+ 120	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 700**	- 20	+ 60	+ 140	+ 100	+ 250	+ 80	+ 70	- 80
SEC 2 FAULT	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
SEC 2+3 FAULT	FULL	0	**1 650**	- 20	+ 60	+ 150	+ 100	+ 240	+ 80	+ 80	- 80
	3	6	**1 830**	- 20	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 100
SEC 1+3 FAULT	FULL	0	**1 780**	- 20	+ 70	+ 180	+ 110	+ 270	+ 80	+ 100	- 120
	3	6	**1 960**	- 20	+ 70	+ 200	+ 130	+ 300	+ 100	+ 130	- 150
SEC 1+2 FAULT	FULL	0	**1 580**	- 20	+ 60	+ 130	+ 90	+ 230	+ 70	+ 70	- 80
	3	6	**1 760**	- 20	+ 60	+ 160	+ 110	+ 260	+ 90	+ 90	- 100
RUDDER JAM	FULL	0	**1 600**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 70	- 70
	3	6	**1 840**	- 20	+ 70	+ 160	+ 130	+ 290	+ 90	+ 100	- 100
SEC 1+2+3 FAULT	3	10	**2 250**	- 30	+ 80	+ 250	+ 160	+ 340	+ 120	+ 180	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 740**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 100
	3	6	**1 900**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 970**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 850**	- 20	+ 40	+ 110	+ 80	+ 210	+ 60	+ 90	- 120
	3	6	**2 010**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 110	- 140
THREE SPLR FAULT	FULL	0	**1 940**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 140
	3	6	**2 110**	- 20	+ 50	+ 140	+ 90	+ 220	+ 70	+ 130	- 160
ALL SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
GND SPLR FAULT	FULL	0	**2 200**	- 20	+ 50	+ 180	+ 100	+ 240	+ 80	+ 170	- 200
	3	6	**2 370**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 220
SEC 1 or SEC 3 FAULT	FULL	0	**1 760**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
	3	6	**1 930**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
SEC 2+3 FAULT	FULL	0	**1 910**	- 20	+ 40	+ 120	+ 90	+ 210	+ 60	+ 110	- 130
	3	6	**2 070**	- 20	+ 50	+ 140	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 040**	- 20	+ 50	+ 150	+ 90	+ 220	+ 70	+ 130	- 180
	3	6	**2 210**	- 20	+ 50	+ 160	+ 100	+ 230	+ 80	+ 150	- 210
SEC 1+2 FAULT	FULL	0	**1 820**	- 20	+ 40	+ 120	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 000**	- 20	+ 40	+ 130	+ 90	+ 210	+ 70	+ 110	- 160
RUDDER JAM	FULL	0	**1 830**	- 20	+ 50	+ 120	+ 100	+ 230	+ 70	+ 90	- 110
	3	6	**2 080**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 120	- 150
SEC 1+2+3 FAULT	3	10	**2 490**	- 20	+ 50	+ 190	+ 120	+ 250	+ 90	+ 190	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 930**	- 20	+ 40	+ 110	+ 90	+ 220	+ 60	+ 110	- 130
	3	6	**2 130**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 130	- 160
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 200**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 260**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 190
THREE SPLR FAULT	FULL	0	**2 160**	- 20	+ 50	+ 150	+ 100	+ 240	+ 80	+ 150	- 180
	3	6	**2 380**	- 20	+ 50	+ 150	+ 110	+ 260	+ 80	+ 180	- 220
ALL SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
GND SPLR FAULT	FULL	0	**2 470**	- 30	+ 60	+ 200	+ 120	+ 280	+ 100	+ 230	- 250
	3	6	**2 690**	- 30	+ 60	+ 220	+ 130	+ 290	+ 110	+ 260	- 290
SEC 1 or SEC 3 FAULT	FULL	0	**1 950**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 110	- 140
	3	6	**2 170**	- 20	+ 50	+ 120	+ 100	+ 240	+ 80	+ 140	- 170
SEC 2 FAULT	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 120**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 170
	3	6	**2 330**	- 20	+ 50	+ 150	+ 110	+ 250	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 280**	- 20	+ 50	+ 160	+ 110	+ 260	+ 80	+ 180	- 220
	3	6	**2 500**	- 30	+ 60	+ 180	+ 120	+ 270	+ 100	+ 210	- 270
SEC 1+2 FAULT	FULL	0	**2 030**	- 20	+ 50	+ 130	+ 90	+ 230	+ 70	+ 130	- 160
	3	6	**2 250**	- 20	+ 50	+ 140	+ 100	+ 240	+ 80	+ 150	- 200
RUDDER JAM	FULL	0	**2 020**	- 20	+ 60	+ 120	+ 110	+ 260	+ 80	+ 130	- 140
	3	6	**2 310**	- 30	+ 60	+ 150	+ 130	+ 290	+ 100	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**2 830**	- 30	+ 60	+ 210	+ 140	+ 300	+ 110	+ 270	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 160**	- 30	+ 80	+ 160	+ 140	+ 360	+ 100	+ 160	- 150
	3	6	**2 500**	- 30	+ 90	+ 200	+ 180	+ 410	+ 130	+ 220	- 190
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 620**	- 40	+ 90	+ 190	+ 180	+ 420	+ 140	+ 230	- 210
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 350**	- 30	+ 90	+ 190	+ 160	+ 400	+ 120	+ 210	- 180
	3	6	**2 730**	- 40	+ 100	+ 230	+ 210	+ 470	+ 150	+ 290	- 230
THREE SPLR FAULT	FULL	0	**2 480**	- 30	+ 90	+ 210	+ 180	+ 430	+ 130	+ 250	- 210
	3	6	**2 890**	- 40	+ 110	+ 260	+ 230	+ 500	+ 170	+ 350	- 260
ALL SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
GND SPLR FAULT	FULL	0	**2 920**	- 40	+ 120	+ 300	+ 250	+ 530	+ 170	+ 430	- 300
	3	6	**3 420**	- 50	+ 130	+ 360	+ 320	+ 620	+ 210	+ 620	- 370
SEC 1 or SEC 3 FAULT	FULL	0	**2 210**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 160
	3	6	**2 580**	- 40	+ 90	+ 210	+ 190	+ 430	+ 140	+ 250	- 200
SEC 2 FAULT	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
SEC 2+3 FAULT	FULL	0	**2 420**	- 30	+ 90	+ 200	+ 170	+ 410	+ 130	+ 230	- 200
	3	6	**2 820**	- 40	+ 110	+ 240	+ 220	+ 480	+ 160	+ 320	- 250
SEC 1+3 FAULT	FULL	0	**2 630**	- 40	+ 100	+ 240	+ 200	+ 460	+ 140	+ 300	- 270
	3	6	**3 080**	- 50	+ 120	+ 290	+ 260	+ 540	+ 180	+ 430	- 350
SEC 1+2 FAULT	FULL	0	**2 320**	- 30	+ 90	+ 190	+ 160	+ 400	+ 110	+ 200	- 190
	3	6	**2 710**	- 40	+ 100	+ 230	+ 200	+ 460	+ 160	+ 290	- 250
RUDDER JAM	FULL	0	**2 210**	- 30	+ 90	+ 160	+ 160	+ 370	+ 110	+ 170	- 160
	3	6	**2 630**	- 40	+ 110	+ 200	+ 210	+ 450	+ 140	+ 260	- 220
SEC 1+2+3 FAULT	3	10	**3 610**	- 50	+ 140	+ 370	+ 330	+ 630	+ 230	+ 660	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 220**	- 40	+ 80	+ 160	+ 210	+ 510	+ 130	+ 620	- 360
	3	6	**3 760**	- 40	+ 90	+ 190	+ 250	+ 560	+ 150	+ 800	- 480
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**3 870**	- 40	+ 90	+ 180	+ 260	+ 560	+ 160	+ 810	- 490
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**3 540**	- 40	+ 90	+ 190	+ 240	+ 540	+ 150	+ 770	- 440
	3	6	**4 120**	- 50	+ 100	+ 220	+ 290	+ 590	+ 180	+ 990	- 580
THREE SPLR FAULT	FULL	0	**3 740**	- 40	+ 90	+ 210	+ 260	+ 560	+ 160	+ 870	- 490
	3	6	**4 360**	- 50	+ 100	+ 250	+ 320	+ 620	+ 190	+ 1 130	- 640
ALL SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
GND SPLR FAULT	FULL	0	**4 440**	- 50	+ 100	+ 280	+ 340	+ 640	+ 190	+ 1 320	- 690
	3	6	**5 160**	- 60	+ 110	+ 350	+ 420	+ 700	+ 230	+ 1 730	- 890
SEC 1 or SEC 3 FAULT	FULL	0	**3 320**	- 40	+ 80	+ 170	+ 220	+ 520	+ 140	+ 660	- 390
	3	6	**3 890**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 870	- 520
SEC 2 FAULT	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
SEC 2+3 FAULT	FULL	0	**3 640**	- 40	+ 90	+ 200	+ 250	+ 550	+ 160	+ 820	- 470
	3	6	**4 240**	- 50	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 060	- 610
SEC 1+3 FAULT	FULL	0	**3 960**	- 50	+ 90	+ 230	+ 280	+ 590	+ 180	+ 1 000	- 490
	3	6	**4 640**	- 50	+ 110	+ 270	+ 350	+ 650	+ 200	+ 1 320	- 710
SEC 1+2 FAULT	FULL	0	**3 500**	- 40	+ 80	+ 190	+ 230	+ 540	+ 150	+ 750	- 360
	3	6	**4 100**	- 50	+ 100	+ 220	+ 290	+ 590	+ 170	+ 980	- 510
RUDDER JAM	FULL	0	**3 190**	- 40	+ 90	+ 160	+ 230	+ 540	+ 140	+ 600	- 350
	3	6	**3 800**	- 50	+ 110	+ 200	+ 290	+ 610	+ 170	+ 820	- 480
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM STAB JAM	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**1 920**	- 20	+ 60	N/A	+ 70	+ 130	+ 50	+ 40	- 40
FLAPS<1	SLATS<1	3	45	**1 840**	- 20	+ 60	N/A	+ 60	+ 130	+ 60	+ 40	- 40
	SLATS≥1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 580**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	SLATS≥1	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 490**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	SLATS≥1	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
FLAPS=3	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 50	+ 30	- 30
	1≤SLATS≤3	3	10	**1 270**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 20
	SLATS>3	3	5	**1 190**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
	SLATS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
FLAPS FAULT	FLAPS<1	3	25	**1 540**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 30
	1≤FLAPS<2	3	15	**1 370**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 30
	2≤FLAPS<3	3	10	**1 280**	- 10	+ 50	+ 80	+ 50	+ 130	+ 50	+ 30	- 20
	FLAPS=3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	FLAPS>3	FULL	5	**1 170**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 20
SLATS FAULT	SLATS<1	3	25	**1 480**	- 10	+ 50	N/A	+ 50	+ 120	+ 40	+ 30	- 30
	1≤SLATS≤3	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
	SLATS>3	3	5	**1 200**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 610**	- 30	+ 80	N/A	+ 160	+ 300	+ 120	+ 110	- 160
FLAPS<1	SLATS<1	3	45	**2 500**	- 30	+ 70	N/A	+ 150	+ 290	+ 110	+ 100	- 140
	SLATS≥1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 090**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 110
	SLATS≥1	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
2≤FLAPS<3	SLATS<1	3	25	**1 970**	- 20	+ 60	N/A	+ 110	+ 250	+ 80	+ 70	- 90
	SLATS≥1	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
FLAPS=3	SLATS<1	3	25	**1 950**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 670**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 600**	- 20	+ 50	+ 110	+ 90	+ 220	+ 70	+ 50	- 60
	SLATS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
FLAPS FAULT	FLAPS<1	3	25	**2 010**	- 20	+ 60	N/A	+ 120	+ 260	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 790**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 80
	2≤FLAPS<3	3	10	**1 680**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 60	- 70
	FLAPS=3	3	10	**1 660**	- 20	+ 60	+ 130	+ 90	+ 240	+ 80	+ 60	- 70
	FLAPS>3	FULL	5	**1 510**	- 20	+ 50	+ 110	+ 80	+ 220	+ 60	+ 50	- 50
SLATS FAULT	SLATS<1	3	25	**1 940**	- 20	+ 60	N/A	+ 110	+ 230	+ 80	+ 70	- 90
	1≤SLATS≤3	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
	SLATS>3	3	5	**1 570**	- 20	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 710**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 110	- 210
FLAPS<1	SLATS<1	3	45	**2 620**	- 20	+ 50	N/A	+ 110	+ 220	+ 90	+ 110	- 200
	SLATS≥1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
1≤FLAPS<2	SLATS<1	3	30	**2 290**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 100	- 160
	SLATS≥1	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
2≤FLAPS<3	SLATS<1	3	25	**2 180**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	SLATS≥1	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
FLAPS=3	SLATS<1	3	25	**2 170**	- 20	+ 40	N/A	+ 90	+ 210	+ 70	+ 90	- 150
	1≤SLATS≤3	3	10	**1 920**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	SLATS>3	3	5	**1 820**	- 20	+ 40	+ 110	+ 70	+ 200	+ 70	+ 90	- 120
FLAPS>3	1≤SLATS≤3	FULL	10	**1 830**	- 20	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 110
	SLATS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
FLAPS FAULT	FLAPS<1	3	25	**2 220**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 160
	1≤FLAPS<2	3	15	**2 030**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 140
	2≤FLAPS<3	3	10	**1 930**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 130
	FLAPS=3	3	10	**1 910**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 130
	FLAPS>3	FULL	5	**1 750**	- 20	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
SLATS FAULT	SLATS<1	3	25	**2 120**	- 20	+ 40	N/A	+ 90	+ 190	+ 70	+ 80	- 130
	1≤SLATS≤3	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 800**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 80	- 110

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 080**	- 30	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 290
FLAPS<1	SLATS<1	3	45	**2 980**	- 30	+ 50	N/A	+ 130	+ 270	+ 100	+ 170	- 280
	SLATS≥1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
1≤FLAPS<2	SLATS<1	3	30	**2 590**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	SLATS≥1	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
2≤FLAPS<3	SLATS<1	3	25	**2 460**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 140	- 210
	SLATS≥1	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
FLAPS=3	SLATS<1	3	25	**2 440**	- 20	+ 50	N/A	+ 100	+ 250	+ 80	+ 130	- 210
	1≤SLATS≤3	3	10	**2 160**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	SLATS>3	3	5	**2 060**	- 20	+ 40	+ 110	+ 90	+ 240	+ 70	+ 130	- 170
FLAPS>3	1≤SLATS≤3	FULL	10	**2 040**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
FLAPS FAULT	FLAPS<1	3	25	**2 530**	- 20	+ 50	N/A	+ 110	+ 250	+ 90	+ 150	- 230
	1≤FLAPS<2	3	15	**2 300**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 200
	2≤FLAPS<3	3	10	**2 180**	- 20	+ 40	+ 110	+ 90	+ 250	+ 80	+ 130	- 180
	FLAPS=3	3	10	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
	FLAPS>3	FULL	5	**1 950**	- 20	+ 40	+ 100	+ 80	+ 230	+ 70	+ 110	- 150
SLATS FAULT	SLATS<1	3	25	**2 360**	- 20	+ 50	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
	SLATS>3	3	5	**2 010**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 260**	- 50	+ 120	N/A	+ 290	+ 590	+ 230	+ 450	- 500
FLAPS<1	SLATS<1	3	45	**4 100**	- 50	+ 120	N/A	+ 290	+ 590	+ 220	+ 440	- 480
	SLATS≥1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
1≤FLAPS<2	SLATS<1	3	30	**3 290**	- 40	+ 100	N/A	+ 220	+ 500	+ 160	+ 300	- 330
	SLATS≥1	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
2≤FLAPS<3	SLATS<1	3	25	**3 030**	- 40	+ 90	N/A	+ 200	+ 470	+ 160	+ 270	- 290
	SLATS≥1	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
FLAPS=3	SLATS<1	3	25	**2 960**	- 40	+ 90	N/A	+ 190	+ 450	+ 150	+ 250	- 270
	1≤SLATS≤3	3	10	**2 560**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 210
	SLATS>3	3	5	**2 410**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 220	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 330**	- 30	+ 70	+ 140	+ 140	+ 380	+ 110	+ 170	- 180
	SLATS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
FLAPS FAULT	FLAPS<1	3	25	**3 340**	- 40	+ 110	N/A	+ 240	+ 540	+ 190	+ 360	- 340
	1≤FLAPS<2	3	15	**2 850**	- 40	+ 100	+ 200	+ 210	+ 490	+ 150	+ 280	- 260
	2≤FLAPS<3	3	10	**2 620**	- 30	+ 90	+ 190	+ 180	+ 470	+ 140	+ 240	- 220
	FLAPS=3	3	10	**2 550**	- 30	+ 90	+ 190	+ 170	+ 440	+ 140	+ 230	- 220
	FLAPS>3	FULL	5	**2 200**	- 30	+ 70	+ 160	+ 140	+ 370	+ 120	+ 170	- 160
SLATS FAULT	SLATS<1	3	25	**2 840**	- 30	+ 90	N/A	+ 180	+ 390	+ 140	+ 210	- 220
	1≤SLATS≤3	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
	SLATS>3	3	5	**2 340**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 160

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
1≤FLAPS<2	SLATS<1	3	30	**5 240**	- 40	+ 30	N/A	+ 320	+ 820	+ 220	+ 2 190	- 1 090
	SLATS≥1	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
2≤FLAPS<3	SLATS<1	3	25	**4 880**	- 40	+ 30	N/A	+ 290	+ 800	+ 200	+ 2 020	- 990
	SLATS≥1	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
FLAPS=3	SLATS<1	3	25	**4 730**	- 30	+ 30	N/A	+ 280	+ 790	+ 190	+ 1 910	- 940
	1≤SLATS≤3	3	10	**4 330**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	SLATS>3	3	5	**4 180**	- 30	+ 30	+ 200	+ 260	+ 770	+ 180	+ 1 910	- 850
FLAPS>3	1≤SLATS≤3	FULL	10	**3 790**	- 30	+ 30	+ 160	+ 220	+ 730	+ 160	+ 1 500	- 690
	SLATS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
FLAPS FAULT	FLAPS<1	3	25	**5 520**	- 40	+ 30	N/A	+ 340	+ 850	+ 230	+ 2 520	- 1 230
	1≤FLAPS<2	3	15	**4 810**	- 30	+ 30	+ 200	+ 300	+ 810	+ 190	+ 2 190	- 1 020
	2≤FLAPS<3	3	10	**4 460**	- 30	+ 30	+ 200	+ 270	+ 790	+ 190	+ 2 010	- 920
	FLAPS=3	3	10	**4 320**	- 30	+ 30	+ 190	+ 260	+ 780	+ 180	+ 1 910	- 870
	FLAPS>3	FULL	5	**3 670**	- 30	+ 30	+ 160	+ 210	+ 720	+ 160	+ 1 490	- 670
SLATS FAULT	SLATS<1	3	25	**4 000**	- 40	+ 90	N/A	+ 250	+ 540	+ 170	+ 700	- 470
	1≤SLATS≤3	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
	SLATS>3	3	5	**3 510**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 690	- 420

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 240**	- 10	+ 40	+ 80	+ 40	+ 120	+ 40	+ 30	- 40
	3	6	**1 320**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 30	- 40
B SYS LO PR	FULL	0	**1 120**	- 10	+ 40	+ 70	+ 40	+ 120	+ 40	+ 20	- 20
	3	6	**1 210**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 20
Y SYS LO PR	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 130	+ 40	+ 20	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 630**	- 10	+ 40	N/A	+ 60	+ 120	+ 50	+ 40	- 60
G + Y	3	25	**2 300**	- 20	+ 80	N/A	+ 100	+ 190	+ 80	+ 110	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 270**	- 10	+ 40	+ 80	+ 50	+ 120	+ 40	+ 20	- 50
	3	6 / 140kt	**1 290**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 30	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 650**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 80	- 90
	3	6	**1 840**	- 20	+ 60	+ 150	+ 110	+ 270	+ 80	+ 90	- 120
B SYS LO PR	FULL	0	**1 460**	- 20	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
	3	6	**1 630**	- 20	+ 60	+ 130	+ 90	+ 240	+ 70	+ 60	- 70
Y SYS LO PR	FULL	0	**1 530**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 60	- 70
	3	6	**1 710**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 400**	- 20	+ 70	N/A	+ 150	+ 290	+ 110	+ 130	- 200
G + Y	3	25	**2 570**	- 30	+ 90	N/A	+ 150	+ 300	+ 120	+ 160	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 720**	- 10	+ 60	+ 140	+ 100	+ 250	+ 80	+ 80	- 150
	3	6 / 140kt	**1 820**	- 10	+ 70	+ 170	+ 110	+ 270	+ 90	+ 100	- 180

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 790**	- 20	+ 40	+ 110	+ 80	+ 200	+ 60	+ 90	- 120
	3	6	**1 960**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 680**	- 20	+ 40	+ 100	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 850**	- 20	+ 40	+ 110	+ 80	+ 190	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 770**	- 20	+ 40	+ 110	+ 80	+ 190	+ 60	+ 80	- 110
	3	6	**1 950**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 440**	- 20	+ 50	N/A	+ 100	+ 220	+ 90	+ 120	- 200
G + Y	3	25	**2 580**	- 20	+ 60	N/A	+ 110	+ 230	+ 90	+ 150	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**1 960**	- 10	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 180
	3	6 / 140kt	**2 060**	- 10	+ 40	+ 140	+ 90	+ 210	+ 80	+ 120	- 210

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 990**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 150
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 190
B SYS LO PR	FULL	0	**1 870**	- 20	+ 40	+ 100	+ 80	+ 220	+ 60	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 120	- 150
Y SYS LO PR	FULL	0	**1 970**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 120	- 130
	3	6	**2 190**	- 20	+ 50	+ 130	+ 100	+ 240	+ 80	+ 140	- 170
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 20	+ 50	N/A	+ 120	+ 250	+ 100	+ 170	- 250
G + Y	3	25	**2 890**	- 30	+ 60	N/A	+ 140	+ 260	+ 100	+ 200	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 190**	- 10	+ 50	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	6 / 140kt	**2 320**	- 10	+ 50	+ 150	+ 110	+ 250	+ 90	+ 160	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 240**	- 30	+ 80	+ 170	+ 150	+ 370	+ 110	+ 180	- 180
	3	6	**2 600**	- 40	+ 100	+ 210	+ 190	+ 430	+ 140	+ 250	- 230
B SYS LO PR	FULL	0	**2 090**	- 30	+ 70	+ 150	+ 130	+ 350	+ 100	+ 150	- 140
	3	6	**2 440**	- 30	+ 90	+ 180	+ 170	+ 410	+ 120	+ 200	- 180
Y SYS LO PR	FULL	0	**2 230**	- 30	+ 80	+ 180	+ 150	+ 380	+ 120	+ 180	- 160
	3	6	**2 610**	- 40	+ 100	+ 220	+ 190	+ 440	+ 150	+ 260	- 220
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 370**	- 40	+ 110	N/A	+ 230	+ 470	+ 170	+ 340	- 380
G + Y	3	25	**3 590**	- 50	+ 120	N/A	+ 260	+ 500	+ 180	+ 410	INOP
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**2 520**	- 10	+ 90	+ 190	+ 170	+ 410	+ 130	+ 240	- 300
	3	6 / 140kt	**2 810**	- 10	+ 110	+ 250	+ 220	+ 480	+ 160	+ 320	- 410

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 340**	- 40	+ 80	+ 170	+ 220	+ 520	+ 150	+ 670	- 310
	3	6	**3 910**	- 50	+ 90	+ 200	+ 270	+ 570	+ 160	+ 880	- 450
B SYS LO PR	FULL	0	**3 130**	- 40	+ 80	+ 150	+ 200	+ 500	+ 130	+ 580	- 340
	3	6	**3 650**	- 40	+ 90	+ 190	+ 240	+ 540	+ 160	+ 750	- 460
Y SYS LO PR	FULL	0	**3 360**	- 40	+ 80	+ 180	+ 220	+ 520	+ 150	+ 680	- 140
	3	6	**3 940**	- 50	+ 90	+ 210	+ 270	+ 570	+ 170	+ 890	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**4 740**	- 50	+ 100	N/A	+ 320	+ 600	+ 200	+ 1 020	- 430
G + Y	3	25	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	FULL	0 / 140kt	**3 750**	- 20	+ 90	+ 170	+ 250	+ 560	+ 160	+ 820	- 290
	3	6 / 140kt	**4 240**	- 20	+ 100	+ 240	+ 300	+ 600	+ 190	+ 1 050	- 480

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80
ONE BRK RELEASED	FULL	0	**1 260**	- 10	+ 50	+ 90	+ 50	+ 140	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 60	+ 90	+ 60	+ 150	+ 40	+ 40	- 40
TWO BRK RELEASED	FULL	0	**1 540**	- 20	+ 60	+ 100	+ 70	+ 180	+ 60	+ 60	- 60
	3	6	**1 730**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 70	- 70
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 200**	- 30	+ 100	+ 110	+ 110	+ 280	+ 80	+ 170	- 140
	3	6	**2 510**	- 40	+ 120	+ 130	+ 120	+ 310	+ 90	+ 220	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 300**	- 30	+ 110	+ 120	+ 110	+ 300	+ 80	+ 190	- 180
	3	6	**2 620**	- 30	+ 130	+ 150	+ 130	+ 320	+ 100	+ 240	- 230
NORM BRK FAULT	FULL	0	**1 160**	- 10	+ 40	+ 70	+ 40	+ 120	+ 30	+ 20	- 20
	3	6	**1 240**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 30
NORM + ALTN FAULT	FULL	0	**1 600**	- 20	+ 70	+ 90	+ 70	+ 180	+ 50	+ 60	- 60
	3	6	**1 780**	- 20	+ 80	+ 100	+ 70	+ 190	+ 60	+ 80	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80
ONE BRK RELEASED	FULL	0	**1 590**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 70	- 70
	3	6	**1 790**	- 20	+ 60	+ 140	+ 100	+ 260	+ 90	+ 90	- 90
TWO BRK RELEASED	FULL	0	**1 880**	- 20	+ 70	+ 130	+ 110	+ 290	+ 80	+ 110	- 120
	3	6	**2 150**	- 30	+ 80	+ 150	+ 130	+ 330	+ 100	+ 140	- 150
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 30	+ 90	+ 120	+ 120	+ 320	+ 80	+ 180	- 140
	3	6	**2 530**	- 40	+ 110	+ 150	+ 140	+ 340	+ 110	+ 230	- 180
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 370**	- 30	+ 100	+ 150	+ 130	+ 350	+ 100	+ 220	- 180
	3	6	**2 700**	- 40	+ 120	+ 180	+ 160	+ 380	+ 120	+ 280	- 230
NORM BRK FAULT	FULL	0	**1 500**	- 20	+ 50	+ 110	+ 80	+ 220	+ 70	+ 60	- 60
	3	6	**1 680**	- 20	+ 60	+ 130	+ 100	+ 240	+ 80	+ 70	- 80
NORM + ALTN FAULT	FULL	0	**1 630**	- 20	+ 60	+ 100	+ 80	+ 210	+ 60	+ 70	- 60
	3	6	**1 810**	- 20	+ 70	+ 120	+ 90	+ 230	+ 70	+ 90	- 80

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110
ONE BRK RELEASED	FULL	0	**1 860**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 070**	- 20	+ 50	+ 110	+ 90	+ 230	+ 80	+ 120	- 150
TWO BRK RELEASED	FULL	0	**2 220**	- 20	+ 50	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 510**	- 30	+ 60	+ 130	+ 120	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 220**	- 20	+ 100	+ 110	+ 110	+ 290	+ 80	+ 180	- 180
	3	6	**2 530**	- 30	+ 110	+ 130	+ 130	+ 310	+ 90	+ 220	- 230
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 440**	- 30	+ 80	+ 130	+ 120	+ 310	+ 90	+ 230	- 220
	3	6	**2 740**	- 30	+ 100	+ 160	+ 140	+ 330	+ 110	+ 270	- 280
NORM BRK FAULT	FULL	0	**1 640**	- 20	+ 40	+ 90	+ 70	+ 180	+ 60	+ 70	- 90
	3	6	**1 810**	- 20	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 110
NORM + ALTN FAULT	FULL	0	**1 640**	- 20	+ 60	+ 90	+ 70	+ 190	+ 50	+ 60	- 90
	3	6	**1 810**	- 20	+ 70	+ 100	+ 80	+ 190	+ 60	+ 80	- 110

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140
ONE BRK RELEASED	FULL	0	**2 060**	- 20	+ 50	+ 110	+ 90	+ 260	+ 70	+ 140	- 150
	3	6	**2 310**	- 20	+ 50	+ 120	+ 110	+ 270	+ 90	+ 170	- 190
TWO BRK RELEASED	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 130	+ 330	+ 90	+ 240	- 220
	3	6	**2 790**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 300	- 280
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 440**	- 30	+ 60	+ 120	+ 120	+ 340	+ 90	+ 240	- 210
	3	6	**2 780**	- 30	+ 70	+ 140	+ 150	+ 360	+ 110	+ 300	- 280
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 690**	- 30	+ 60	+ 140	+ 150	+ 360	+ 100	+ 310	- 250
	3	6	**3 060**	- 30	+ 70	+ 170	+ 170	+ 390	+ 120	+ 390	- 330
NORM BRK FAULT	FULL	0	**1 820**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 020**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140
NORM + ALTN FAULT	FULL	0	**1 810**	- 20	+ 40	+ 100	+ 80	+ 210	+ 60	+ 90	- 110
	3	6	**2 010**	- 20	+ 40	+ 110	+ 90	+ 220	+ 70	+ 110	- 140

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160
ONE BRK RELEASED	FULL	0	**2 260**	- 30	+ 80	+ 150	+ 140	+ 380	+ 110	+ 190	- 170
	3	6	**2 650**	- 40	+ 90	+ 180	+ 180	+ 450	+ 130	+ 260	- 220
TWO BRK RELEASED	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 200	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**2 620**	- 30	+ 90	+ 160	+ 170	+ 450	+ 120	+ 300	- 230
	3	6	**3 100**	- 40	+ 110	+ 190	+ 220	+ 530	+ 150	+ 410	- 310
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**2 900**	- 40	+ 100	+ 190	+ 200	+ 500	+ 140	+ 390	- 280
	3	6	**3 440**	- 50	+ 130	+ 230	+ 270	+ 600	+ 180	+ 550	- 390
NORM BRK FAULT	FULL	0	**2 030**	- 30	+ 70	+ 140	+ 130	+ 340	+ 90	+ 130	- 130
	3	6	**2 360**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 180	- 170
NORM + ALTN FAULT	FULL	0	**2 020**	- 30	+ 70	+ 150	+ 130	+ 330	+ 100	+ 130	- 130
	3	6	**2 350**	- 30	+ 80	+ 180	+ 160	+ 380	+ 120	+ 180	- 160

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420
ONE BRK RELEASED	FULL	0	**3 330**	- 40	+ 80	+ 150	+ 240	+ 600	+ 140	+ 830	- 380
	3	6	**3 930**	- 50	+ 90	+ 190	+ 300	+ 650	+ 170	+ 1 090	- 510
TWO BRK RELEASED	FULL	0	**3 750**	- 50	+ 30	+ 190	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 230	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if NORM BRK FAULT)	FULL	0	**3 750**	- 50	+ 30	+ 180	+ 420	+ 820	+ 190	+ 1 660	- 460
	3	6	**4 490**	- 50	+ 30	+ 220	+ 530	+ 890	+ 230	+ 2 210	- 630
ALTN L(R) RELEASED (if G SYS LO PR)	FULL	0	**4 170**	- 50	+ 30	+ 210	+ 500	+ 870	+ 210	+ 2 060	- 320
	3	6	**5 010**	- 60	+ 30	+ 250	+ 630	+ 950	+ 250	+ 2 780	- 520
NORM BRK FAULT	FULL	0	**3 020**	- 30	+ 70	+ 140	+ 190	+ 490	+ 130	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 150	+ 700	- 420
NORM + ALTN FAULT	FULL	0	**3 020**	- 40	+ 70	+ 140	+ 190	+ 490	+ 120	+ 540	- 320
	3	6	**3 530**	- 40	+ 80	+ 170	+ 230	+ 530	+ 140	+ 700	- 420

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 10	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20
ALL ADR OFF	3	N/A	**1 260**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 20

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 210	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70
ALL ADR OFF	3	N/A	**1 660**	- 20	+ 60	+ 120	+ 90	+ 230	+ 70	+ 60	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 210**	- 20	+ 50	+ 160	+ 90	+ 220	+ 80	+ 20	- 10
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110
ALL ADR OFF	3	N/A	**1 870**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 270**	- 20	+ 50	+ 160	+ 100	+ 240	+ 80	+ 70	- 30
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150
ALL ADR OFF	3	N/A	**2 090**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 40
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180
ALL ADR OFF	3	N/A	**2 460**	- 30	+ 80	+ 170	+ 160	+ 390	+ 120	+ 190	- 180

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 380
DUAL IR FAULT/ DUAL ADR FAULT	3	10	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440
ALL ADR OFF	3	N/A	**3 630**	- 40	+ 80	+ 170	+ 240	+ 530	+ 150	+ 700	- 440

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 230**	- 10	+ 50	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 350**	- 10	+ 50	+ 80	+ 50	+ 130	+ 40	+ 20	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 580**	- 20	+ 50	+ 110	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 760**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 790**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
	3	16	**1 970**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**1 980**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 100	- 130
	3	16	**2 190**	- 20	+ 50	+ 110	+ 100	+ 220	+ 80	+ 110	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**2 240**	- 30	+ 70	+ 140	+ 130	+ 340	+ 110	+ 140	- 150
	3	16	**2 610**	- 30	+ 90	+ 170	+ 170	+ 390	+ 130	+ 200	- 200

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED FAULT/ WING or ENG BLEED LEAK/ X BLEED FAULT/ ENG BLEED LO TEMP (if Ice Accretion)	FULL	10	**3 230**	- 40	+ 80	+ 140	+ 200	+ 500	+ 130	+ 540	- 340
	3	16	**3 780**	- 40	+ 90	+ 160	+ 240	+ 530	+ 150	+ 700	- 450

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 700**	- 20	+ 50	N/A	+ 60	+ 130	+ 50	+ 30	- 40
	3	10	**1 250**	- 10	+ 50	+ 80	+ 50	+ 120	+ 40	+ 20	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 220**	- 10	+ 40	+ 70	+ 50	+ 120	+ 40	+ 20	- 20
	3	16	**1 330**	- 10	+ 50	+ 80	+ 50	+ 120	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 250**	- 20	+ 70	N/A	+ 120	+ 250	+ 100	+ 80	- 130
	3	10	**1 630**	- 20	+ 60	+ 120	+ 90	+ 220	+ 70	+ 60	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 560**	- 20	+ 50	+ 100	+ 80	+ 210	+ 70	+ 50	- 60
	3	16	**1 740**	- 20	+ 60	+ 120	+ 90	+ 220	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 66T	Per 1T BELOW 66T	Per 1T ABOVE 66T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 380**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 170
	3	10	**1 840**	- 20	+ 40	+ 100	+ 70	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 770**	- 20	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 110
	3	16	**1 940**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 650**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 130	- 220
	3	10	**2 050**	- 20	+ 50	+ 110	+ 80	+ 220	+ 80	+ 110	- 170
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 950**	- 20	+ 40	+ 90	+ 80	+ 220	+ 70	+ 90	- 140
	3	16	**2 160**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 110	- 180

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 350**	- 40	+ 100	N/A	+ 190	+ 420	+ 160	+ 250	- 360
	3	10	**2 410**	- 30	+ 80	+ 170	+ 150	+ 380	+ 120	+ 180	- 200
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 200**	- 30	+ 70	+ 140	+ 120	+ 330	+ 110	+ 140	- 160
	3	16	**2 560**	- 30	+ 90	+ 170	+ 150	+ 370	+ 130	+ 190	- 230

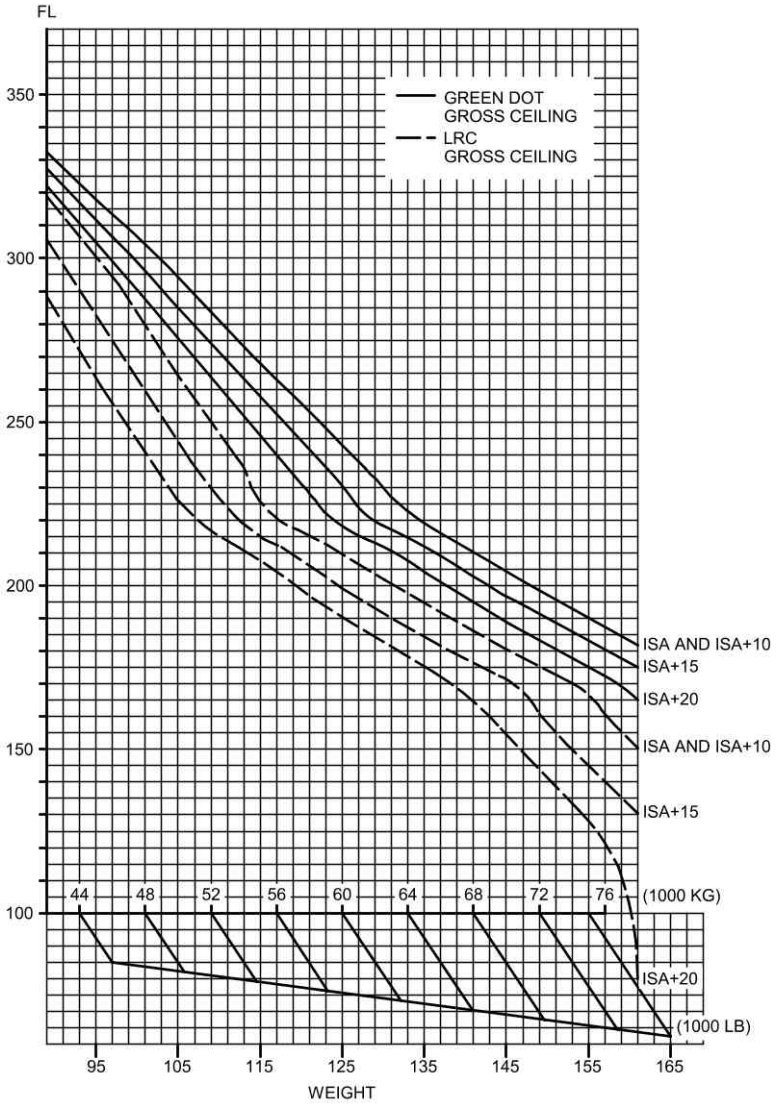
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 66T**	**Per 1T BELOW 66T**	**Per 1T ABOVE 66T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**4 610**	- 50	+ 110	N/A	+ 230	+ 550	+ 190	+ 780	- 730
	3	10	**3 570**	- 40	+ 90	+ 160	+ 190	+ 510	+ 140	+ 670	- 530
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 180**	- 40	+ 80	+ 140	+ 160	+ 470	+ 130	+ 520	- 410
	3	16	**3 720**	- 40	+ 90	+ 160	+ 190	+ 510	+ 150	+ 660	- 550

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA AND ISA + 10	ISA + 15 AND ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-4 000 ft
	TOTAL ANTI ICE ON	-2 700 ft	-7 400 ft
GREEN DOT	ENGINE ANTI ICE ON	- 700 ft	- 900 ft
	TOTAL ANTI ICE ON	-1 700 ft	-2 100 ft

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST LIMITS
HIGH AIR CONDITIONING
ANTI ICE OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL (1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50			154 30 191 0.8 30000	215 42 193 1.0 30100	251 48 195 1.2 30100	278 53 197 1.3 30200	300 57 199 1.3 30200
52		97 19 193 0.5 28700	208 41 195 1.1 29000	252 49 197 1.2 29100	282 54 199 1.4 29200	305 58 201 1.4 29200	325 61 203 1.5 29300
54		172 34 197 0.9 27900	238 47 199 1.2 28000	274 53 201 1.4 28100	301 58 203 1.5 28200	321 61 205 1.6 28200	341 64 207 1.6 28200
56		203 40 201 1.1 26900	258 51 203 1.4 27000	289 56 205 1.5 27100	315 60 207 1.6 27200	336 64 209 1.7 27200	352 66 211 1.7 27200
58		171 33 205 1.0 26500	214 41 207 1.2 26500	244 47 209 1.3 26500	268 51 211 1.4 26500	287 54 213 1.4 26600	306 57 215 1.5 26600
60		166 32 209 0.9 26000	201 38 211 1.1 26100	227 43 213 1.2 26100	249 47 215 1.3 26100	268 50 217 1.4 26100	284 52 219 1.4 26100
62		165 31 213 1.0 25700	195 37 215 1.1 25700	218 41 217 1.2 25700	239 44 219 1.3 25700	256 47 221 1.3 25700	272 49 223 1.4 25800
64		165 31 217 1.0 25300	192 36 219 1.1 25400	214 39 221 1.2 25400	232 42 223 1.3 25400	249 45 225 1.3 25400	264 47 227 1.4 25400
66	51 10 217 0.3 24900	165 31 221 1.0 25000	188 35 223 1.1 25000	210 38 225 1.2 25000	226 41 227 1.2 25100	242 43 229 1.3 25100	257 45 231 1.3 25100
68	129 24 221 0.9 24400	207 38 225 1.3 24500	228 42 227 1.4 24600	246 45 229 1.5 24600	261 47 231 1.5 24600	277 49 233 1.5 24600	290 51 235 1.6 24600
70	162 30 225 1.1 23800	230 42 229 1.5 23900	250 46 231 1.6 24000	268 48 233 1.6 24000	282 50 235 1.7 24000	298 53 237 1.7 24000	
72	185 34 229 1.3 23200	245 45 233 1.6 23300	265 48 235 1.7 23400	282 51 237 1.7 23400	296 53 239 1.8 23400	310 55 241 1.8 23400	
74	205 38 233 1.4 22700	257 47 237 1.7 22700	275 49 239 1.8 22800	293 52 241 1.9 22800	307 54 243 1.9 22800	321 56 245 1.9 22800	
76	220 40 237 1.6 22100	268 48 241 1.8 22200	286 51 243 1.9 22200	300 53 245 1.9 22200	316 56 247 2.0 22200	331 58 249 2.0 22200	
78	252 46 241 1.8 21400	295 53 245 2.0 21500	312 55 247 2.1 21500	326 58 249 2.2 21600	339 59 251 2.2 21600		

CORRECTIONS	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
FUEL	+ 14 %	+ 28 %
TIME	+ 13 %	+ 26 %
DISTANCE	+ 12 %	+ 23 %
LEVEL OFF	- 700 ft	- 1800 ft

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS PACK FLOW HI ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.151 .430 1811 237	1.236 .511 1968 258	1.267 .515 1792 240	1.316 .550 1841 247	1.344 .556 1777 239	1.393 .584 1801 241
52	1.158 .435 1879 240	1.240 .511 1987 257	1.292 .535 1907 250	1.327 .553 1881 248	1.363 .567 1855 244	1.412 .594 1874 246
54	1.170 .447 1983 247	1.245 .510 2011 257	1.312 .550 1999 256	1.338 .555 1925 249	1.385 .581 1947 251	1.431 .602 1942 249
56	1.183 .461 2098 255	1.250 .510 2040 257	1.323 .553 2044 258	1.355 .565 2001 253	1.404 .592 2024 255	1.440 .600 1963 248
58	1.226 .510 2373 283	1.260 .514 2095 259	1.333 .555 2086 259	1.374 .576 2086 259	1.417 .595 2071 257	1.444 .585 1952 242
60	1.233 .514 2415 285	1.270 .519 2156 261	1.346 .561 2145 262	1.394 .588 2174 264	1.420 .585 2065 252	1.452 .562 1935 232
62	1.236 .514 2434 285	1.294 .540 2287 272	1.362 .570 2225 266	1.410 .596 2248 268	1.426 .570 2055 246	
64	1.239 .513 2454 284	1.311 .552 2382 279	1.381 .582 2317 272	1.418 .595 2272 267	1.435 .544 2037 234	
66	1.243 .513 2476 284	1.322 .556 2432 281	1.397 .591 2399 277	1.421 .585 2264 263		
68	1.247 .512 2499 283	1.330 .558 2472 282	1.412 .599 2473 280	1.426 .570 2253 256		
70	1.254 .514 2550 285	1.338 .560 2516 283	1.426 .604 2537 283	1.436 .543 2232 243		
72	1.262 .517 2604 287	1.351 .567 2592 286	1.428 .598 2533 280			
74	1.270 .521 2666 289	1.365 .575 2673 290	1.432 .587 2523 274			
76	1.290 .539 2805 299	1.381 .585 2767 296	1.438 .571 2509 267			
78	1.308 .554 2927 307	1.395 .593 2850 300	1.450 .537 2478 250			
ENGINE ANTI ICE ON △FUEL = + 2.5 %				TOTAL ANTI ICE ON △FUEL = + 6 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6 MIN)

REF. INITIAL WEIGHT = 55000 KG
PACK FLOW HI
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1410 0.47	1187 0.44	1049 0.42	999 0.41	954 0.40	931 0.40	9	5	4
300	2101 1.09	1816 1.03	1627 1.00	1559 0.59	1499 0.57	1469 0.57	15	11	10
400	2785 1.30	2442 1.22	2203 1.17	2116 1.16	2042 1.14	2004 1.13	20	16	15
500	3463 1.52	3066 1.40	2776 1.35	2669 1.34	2581 1.31	2535 1.30	26	22	20
600	4136 2.14	3688 1.59	3346 1.53	3219 1.52	3118 1.48	3063 1.47	31	28	26
700	4801 2.36	4307 2.18	3913 2.11	3766 2.09	3652 2.05	3588 2.04	37	33	31
800	5460 2.58	4924 2.37	4477 2.28	4309 2.27	4183 2.22	4110 2.20	42	39	37
900	6114 3.20	5540 2.55	5040 2.46	4849 2.45	4710 2.39	4629 2.37	47	44	43
1000	6761 3.43	6153 3.14	5600 3.04	5386 3.03	5233 2.56	5146 2.54	51	49	48
1100	7403 4.05	6764 3.33	6157 3.22	5920 3.21	5753 3.14	5660 3.11	56	55	54
1200	8046 4.28	7373 3.52	6712 3.40	6451 3.39	6269 3.31	6173 3.28	61	60	60
1300	8686 4.49	7980 4.10	7265 3.58	6979 3.57	6783 3.49	6682 3.45	65	65	66
1400	9323 5.11	8586 4.29	7812 4.17	7504 4.15	7293 4.07	7189 4.02	70	70	72

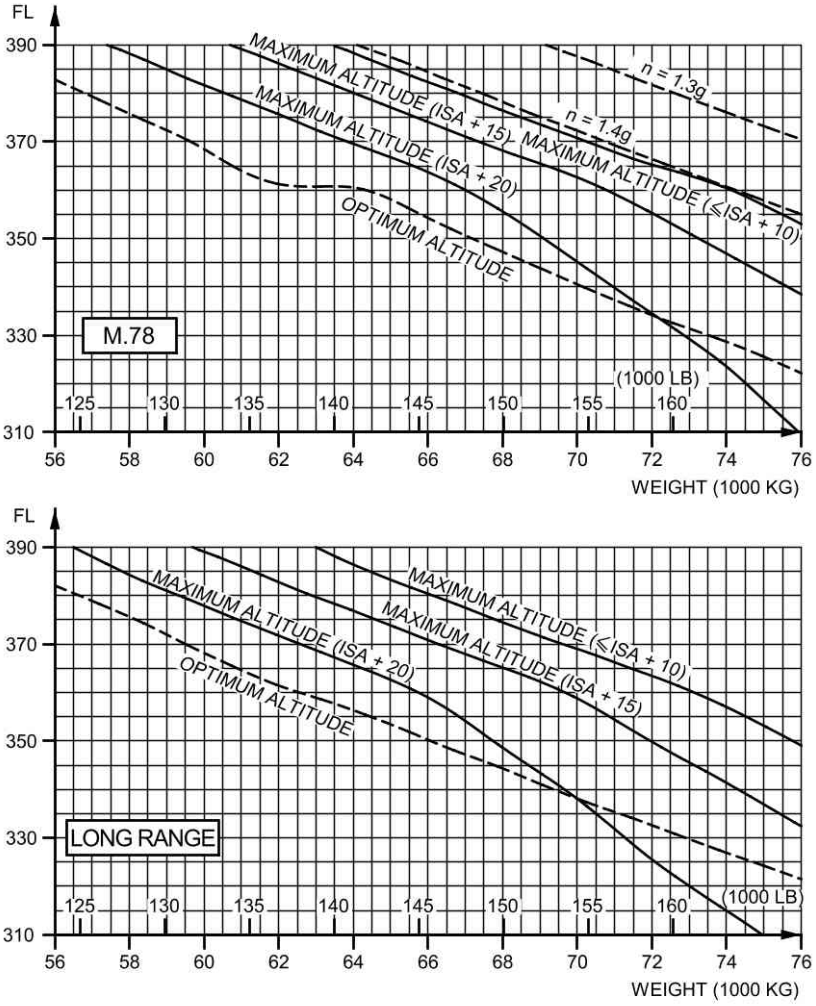
ENGINE ANTI ICE ON
△FUEL = + 3 %

TOTAL ANTI ICE ON
△FUEL = + 6 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-08-140

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES



CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 900 ft Opt ALT : No corr.	Max ALT : -1 700 ft Opt ALT : No corr.
ISA +15	Max ALT : -1 400 ft Opt ALT : No corr.	Max ALT : -2 800 ft Opt ALT : -1 400 ft
ISA +20	Max ALT : -1 700 ft Opt ALT : -1 500 ft	Max ALT : -2 800 ft Opt ALT : -2 000 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 120 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	933 0.36	879 0.36	834 0.36	792 0.36	757 0.36	739 0.36	0	1	3
400	2069 1.02	1951 1.02	1858 1.03	1774 1.03	1704 1.03	1692 1.03	5	9	20
600	3202 1.28	3016 1.28	2873 1.29	2748 1.30	2642 1.30	2628 1.30	9	17	33
800	4331 1.54	4074 1.55	3881 1.55	3714 1.56	3572 1.57	3550 1.57	13	24	45
1000	5456 2.20	5124 2.21	4881 2.22	4673 2.23	4492 2.23	4458 2.23	17	32	57
1200	6579 2.46	6168 2.47	5874 2.48	5624 2.50	5403 2.50	5352 2.50	20	39	67
1400	7699 3.12	7206 3.13	6859 3.15	6569 3.16	6306 3.17	6232 3.17	23	46	77
1600	8817 3.37	8245 3.39	7838 3.41	7505 3.43	7202 3.44	7101 3.44	26	53	87
1800	9932 4.03	9279 4.05	8812 4.07	8432 4.09	8093 4.11	7957 4.11	28	59	95
2000	11044 4.29	10308 4.32	9778 4.34	9353 4.36	8978 4.37	8803 4.37	30	65	103
2200	12154 4.55	11332 4.58	10738 5.00	10266 5.03	9855 5.04	9637 5.04	31	71	110
2400	13262 5.21	12355 5.24	11692 5.27	11173 5.29	10726 5.31	10460 5.31	33	77	117
2600	14367 5.47	13380 5.50	12640 5.53	12072 5.56	11590 5.58	11274 5.58	34	83	123
2800	15469 6.13	14403 6.16	13582 6.19	12966 6.23	12448 6.25	12078 6.25	35	87	130
3000	16570 6.39	15422 6.42	14519 6.46	13853 6.49	13300 6.51	12888 6.51	36	92	136

LOW AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.4 %	△FUEL = + 3 %	△FUEL = + 5.5 %

PROGRAM : FLIP23C 17.07.97 ; AERO : A320-232 01/06/97 ; MOTO : A320-233 15/10/97 ; GENE : A320-232 01/10/97 END OF FLIP CL-NO-04-10-140

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 40 kg/min in the FMGC.

  or
- CI_{LRC} = 55 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	45				65				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.1	188	98	1.047	19.0	192	114	IDLE	241
370	14.6	158	87	1.066	18.2	185	108	IDLE	252
350	13.5	139	78	IDLE	17.5	178	102	IDLE	264
330	12.9	134	74	IDLE	16.8	171	97	IDLE	277
310	12.4	129	71	IDLE	16.1	166	93	IDLE	289
290	12.0	125	67	IDLE	15.5	160	88	IDLE	300
270	11.4	120	63	IDLE	14.7	153	82	IDLE	300
250	10.8	115	58	IDLE	13.9	146	76	IDLE	300
240	10.5	112	56	IDLE	13.5	143	73	IDLE	300
220	9.9	107	52	IDLE	12.7	136	67	IDLE	300
200	9.3	102	48	IDLE	11.8	129	62	IDLE	300
180	8.7	97	44	IDLE	11.0	122	56	IDLE	300
160	8.0	91	40	IDLE	10.1	114	50	IDLE	300
140	7.4	85	36	IDLE	9.2	106	45	IDLE	300
120	6.7	79	32	IDLE	8.3	97	39	IDLE	300
100	6.0	72	28	IDLE	7.4	88	34	IDLE	300
50	2.2	28	10	IDLE	2.7	34	12	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	-	+ 4 %	+ 18 %	+ 0.3 %
FUEL	- 1 %	+ 17 %	+ 85 %	+ 0.4 %
DISTANCE	-	+ 4 %	+ 18 %	+ 0.4 %

10F - 08F0A320 - 233 IAE V2527-EA5 23100000C5KG330 0 018590 0 0 - 1 - 350.0 15.0 .00 0 03 .780300.000250.000 0 CL-N0 - 04 - 12 - 140

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 100 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 80 KG (4MIN)

REF. LDG WT AT DEST. = 55000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	529 0.12						2		
60	681 0.16						4		
80	832 0.20	803 0.20					5		
100	984 0.24	943 0.24	939 0.22				6	5	
120	1136 0.28	1084 0.27	1066 0.26	1072 0.25			7	6	
140	1289 0.32	1224 0.31	1192 0.29	1182 0.28			9	7	
160	1441 0.37	1365 0.35	1319 0.32	1291 0.32	1307 0.31		10	7	9
180	1594 0.41	1506 0.39	1446 0.35	1401 0.35	1409 0.34	1422 0.33	11	8	11
200	1747 0.45	1647 0.42	1573 0.38	1511 0.38	1511 0.37	1518 0.36	13	9	12
220	1900 0.49	1788 0.46	1700 0.42	1621 0.41	1613 0.40	1613 0.39	14	9	13
240	2054 0.53	1930 0.50	1828 0.45	1731 0.45	1715 0.43	1709 0.42	15	10	14
260	2207 0.57	2072 0.54	1955 0.48	1841 0.48	1817 0.46	1805 0.45	17	11	15
280	2361 1.01	2213 0.57	2082 0.51	1951 0.51	1920 0.49	1901 0.48	18	11	16
300	2515 1.05	2356 1.01	2210 0.54	2061 0.54	2022 0.52	1997 0.51	19	12	17
320	2669 1.09	2498 1.05	2337 0.58	2172 0.57	2125 0.56	2094 0.53	21	13	18
340	2823 1.13	2640 1.09	2465 1.01	2282 1.01	2228 0.59	2190 0.56	22	13	19
360	2978 1.17	2783 1.12	2592 1.04	2393 1.04	2330 1.02	2286 0.59	23	14	20
380	3133 1.21	2926 1.16	2720 1.07	2503 1.07	2433 1.05	2383 1.02	25	15	21
400	3288 1.25	3069 1.20	2848 1.10	2614 1.10	2537 1.08	2480 1.05	26	16	22
420	3443 1.29	3212 1.23	2975 1.14	2725 1.14	2640 1.11	2576 1.08	27	16	23
440	3598 1.33	3356 1.27	3103 1.17	2835 1.17	2743 1.14	2673 1.11	29	17	25
460	3754 1.37	3499 1.30	3231 1.20	2946 1.20	2846 1.17	2770 1.13	30	18	26
480	3909 1.41	3643 1.34	3359 1.23	3057 1.23	2950 1.20	2868 1.16	31	18	27
500	4065 1.45	3787 1.38	3487 1.26	3169 1.27	3054 1.23	2965 1.19	33	19	28

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 3 %	△FUEL = + 7 %

CL-N0-04-13-140

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 120 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

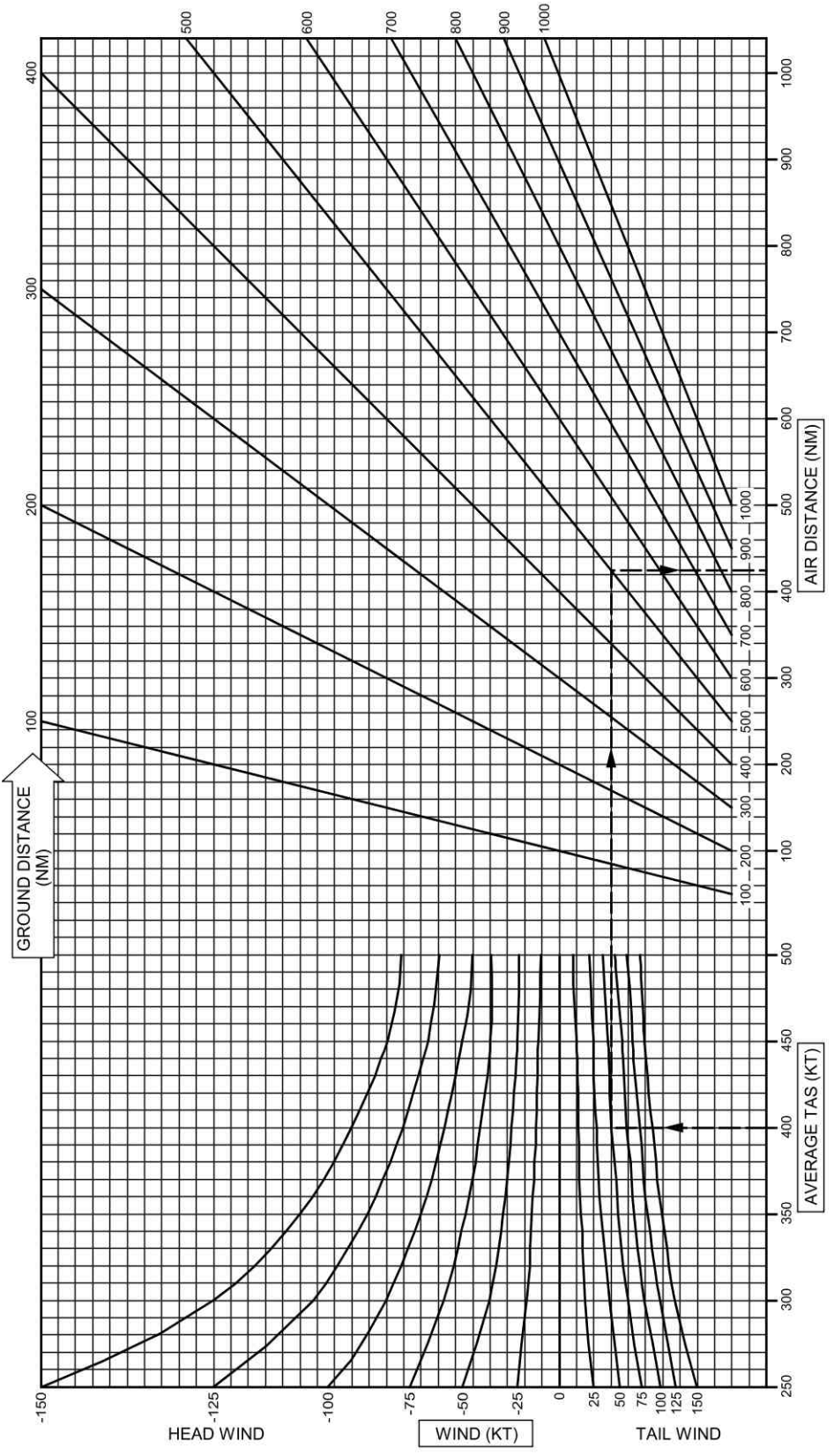
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	50	**55**	**60**	**65**	**70**	**75**	**80**
40	301 0.15	296 0.15	293 0.15	293 0.15	294 0.15	296 0.15	300 0.15
60	445 0.19	446 0.19	450 0.19	456 0.19	463 0.18	472 0.18	480 0.18
80	588 0.23	596 0.23	606 0.23	619 0.22	633 0.22	648 0.21	661 0.21
100	731 0.28	746 0.27	762 0.27	781 0.26	802 0.25	824 0.25	841 0.24
120	874 0.32	895 0.31	918 0.31	944 0.30	971 0.29	999 0.28	1021 0.27
140	1017 0.36	1045 0.35	1074 0.35	1106 0.34	1140 0.33	1174 0.31	1201 0.30
160	1160 0.41	1194 0.40	1229 0.39	1268 0.38	1309 0.36	1349 0.35	1381 0.34
180	1302 0.45	1343 0.44	1385 0.43	1430 0.42	1477 0.40	1524 0.38	1560 0.37
200	1444 0.50	1491 0.48	1540 0.47	1591 0.45	1645 0.44	1699 0.41	1740 0.40
220	1587 0.54	1640 0.52	1695 0.51	1752 0.49	1813 0.47	1873 0.45	1919 0.43
240	1728 0.58	1788 0.56	1849 0.55	1914 0.53	1981 0.51	2048 0.48	2098 0.46
260	1870 1.03	1936 1.00	2004 0.59	2074 0.57	2148 0.55	2222 0.52	2277 0.50
280	2012 1.07	2084 1.05	2158 1.03	2235 1.01	2316 0.58	2396 0.55	2456 0.53
300	2153 1.11	2232 1.09	2312 1.07	2396 1.05	2483 1.02	2570 0.58	2634 0.56
320	2294 1.16	2380 1.13	2466 1.11	2556 1.09	2650 1.06	2743 1.02	2813 0.59
340	2435 1.20	2527 1.17	2620 1.15	2716 1.12	2816 1.10	2917 1.05	2991 1.02
360	2576 1.25	2674 1.21	2773 1.19	2876 1.16	2983 1.13	3090 1.09	3169 1.06
380	2716 1.29	2821 1.26	2927 1.23	3035 1.20	3149 1.17	3263 1.12	3347 1.09
400	2856 1.33	2968 1.30	3080 1.27	3195 1.24	3315 1.21	3436 1.16	3525 1.12
420	2997 1.38	3114 1.34	3233 1.31	3354 1.28	3480 1.25	3609 1.19	3702 1.15
440	3137 1.42	3261 1.38	3385 1.35	3513 1.32	3646 1.28	3781 1.22	3880 1.19
460	3276 1.47	3407 1.43	3538 1.39	3672 1.36	3811 1.32	3954 1.26	4057 1.22
480	3416 1.51	3553 1.47	3690 1.43	3830 1.40	3977 1.36	4126 1.29	4235 1.25
500	3555 1.56	3699 1.51	3842 1.47	3989 1.44	4142 1.40	4298 1.33	4412 1.29
520	3695 2.00	3844 1.55	3994 1.51	4147 1.48	4306 1.43	4470 1.36	4588 1.32
540	3834 2.05	3990 2.00	4146 1.55	4305 1.51	4471 1.47	4642 1.40	4765 1.35

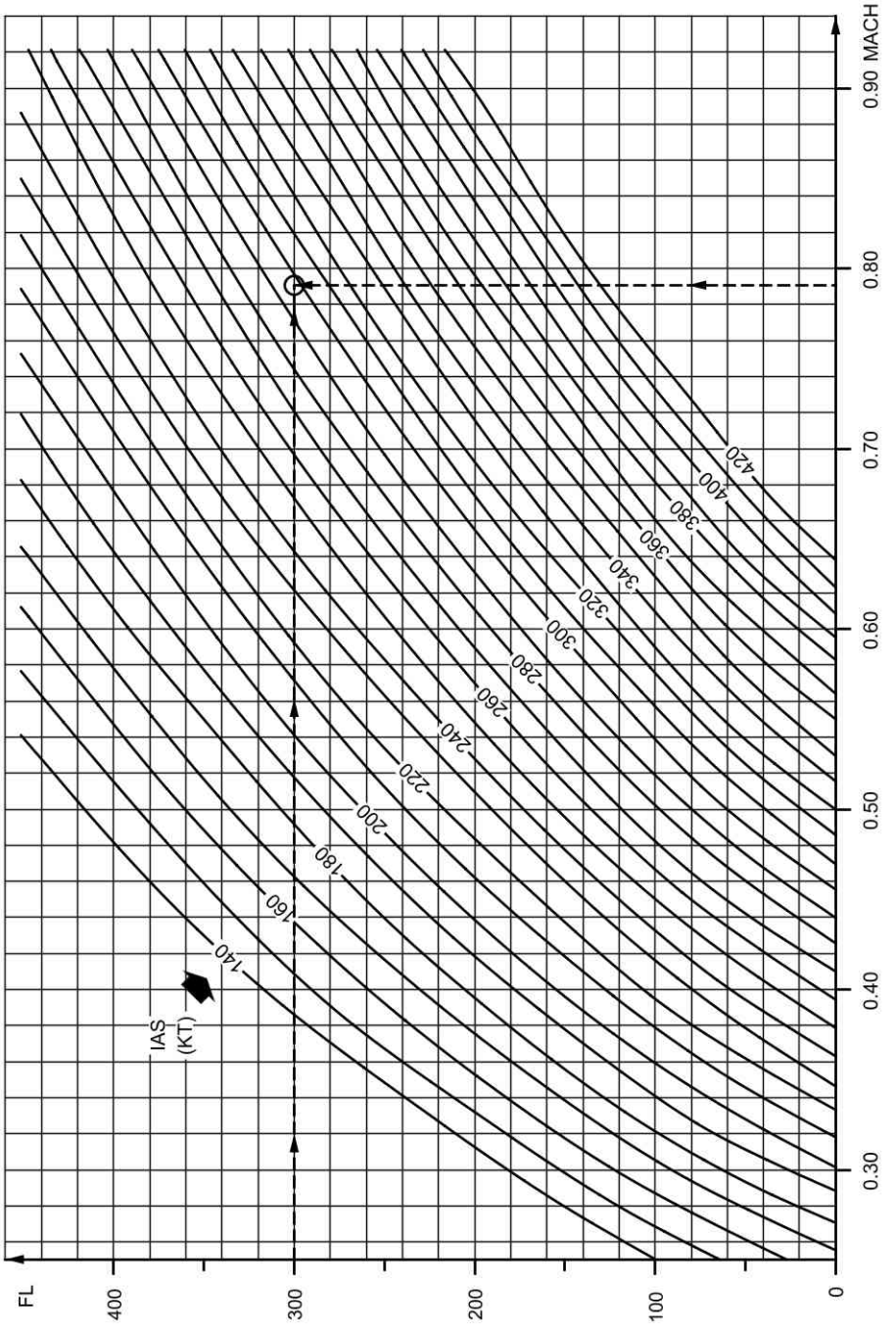
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = – 1.5 %	△FUEL = + 3 %	△FUEL = + 6 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

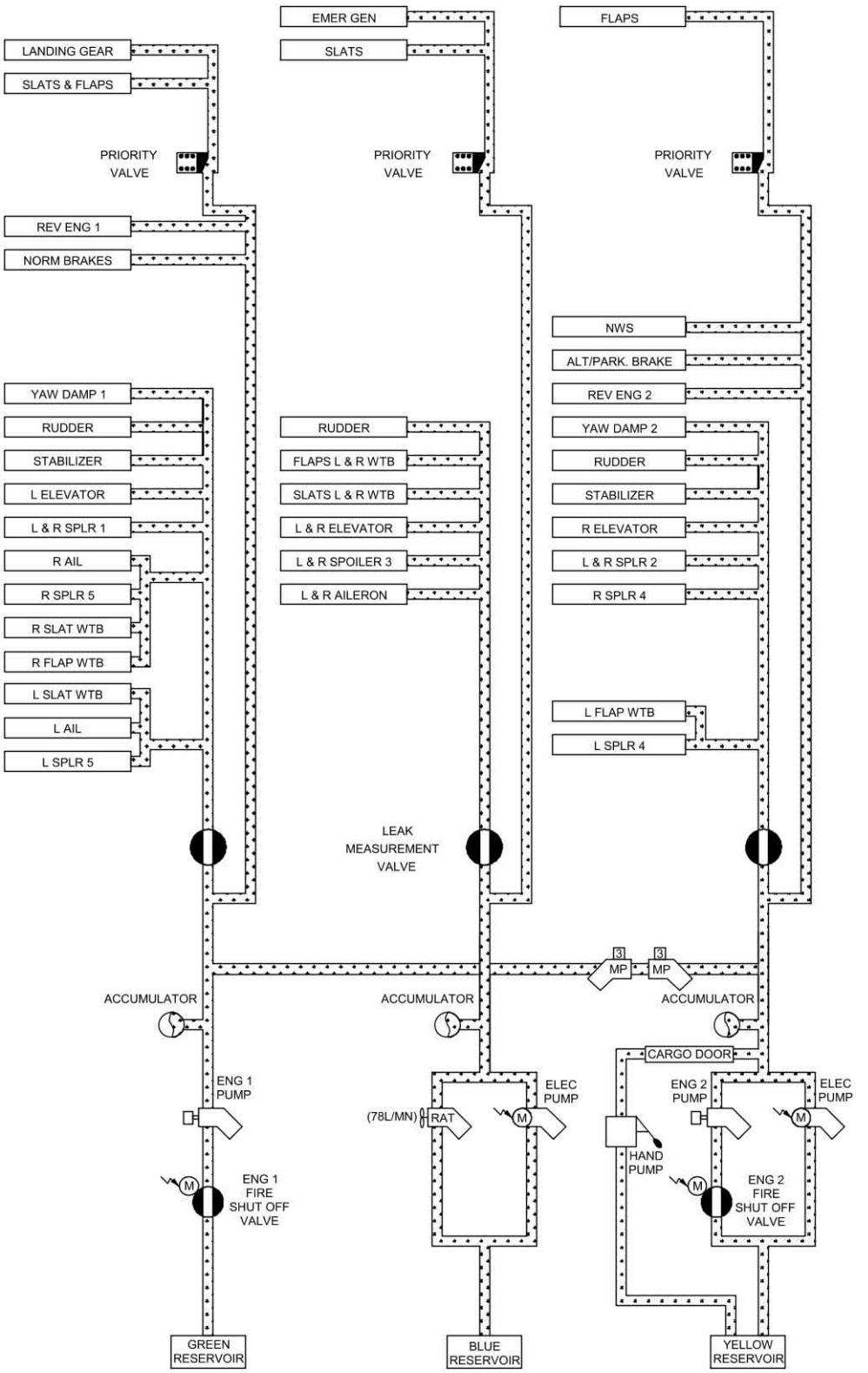
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)								
		44	48	52	56	60	64	68	72	76
		N1 %								
390	**0.76**	75.7	76.6	77.7	79.0	-	-	-	-	-
370	**0.76**	74.7	75.5	76.3	77.2	78.4	79.7	-	-	-
350	**0.76**	74.3	74.8	75.6	76.3	77.1	78.1	79.3	80.5	-
330	**0.76**	74.5	74.8	75.3	76.0	76.6	77.4	78.2	79.2	80.2
310	**275**	74.1	74.3	74.7	75.2	75.8	76.4	77.1	77.9	78.8
290	**275**	72.9	73.2	73.5	73.9	74.5	75.1	75.8	76.5	77.3
270	**275**	71.7	71.9	72.3	72.7	73.3	73.9	74.5	75.2	76.0
250	**275**	70.4	70.7	71.0	71.4	71.9	72.6	73.2	73.9	74.7
200	**275**	66.8	67.1	67.4	67.9	68.4	69.0	69.8	70.4	71.1
150	**250**	59.9	60.4	61.0	61.7	62.5	63.5	64.5	65.5	66.5
100	**250**	56.3	56.7	57.2	57.8	58.5	59.3	60.3	61.4	62.5
50	**250**	52.7	53.4	53.8	54.4	54.9	55.7	56.5	57.4	58.4

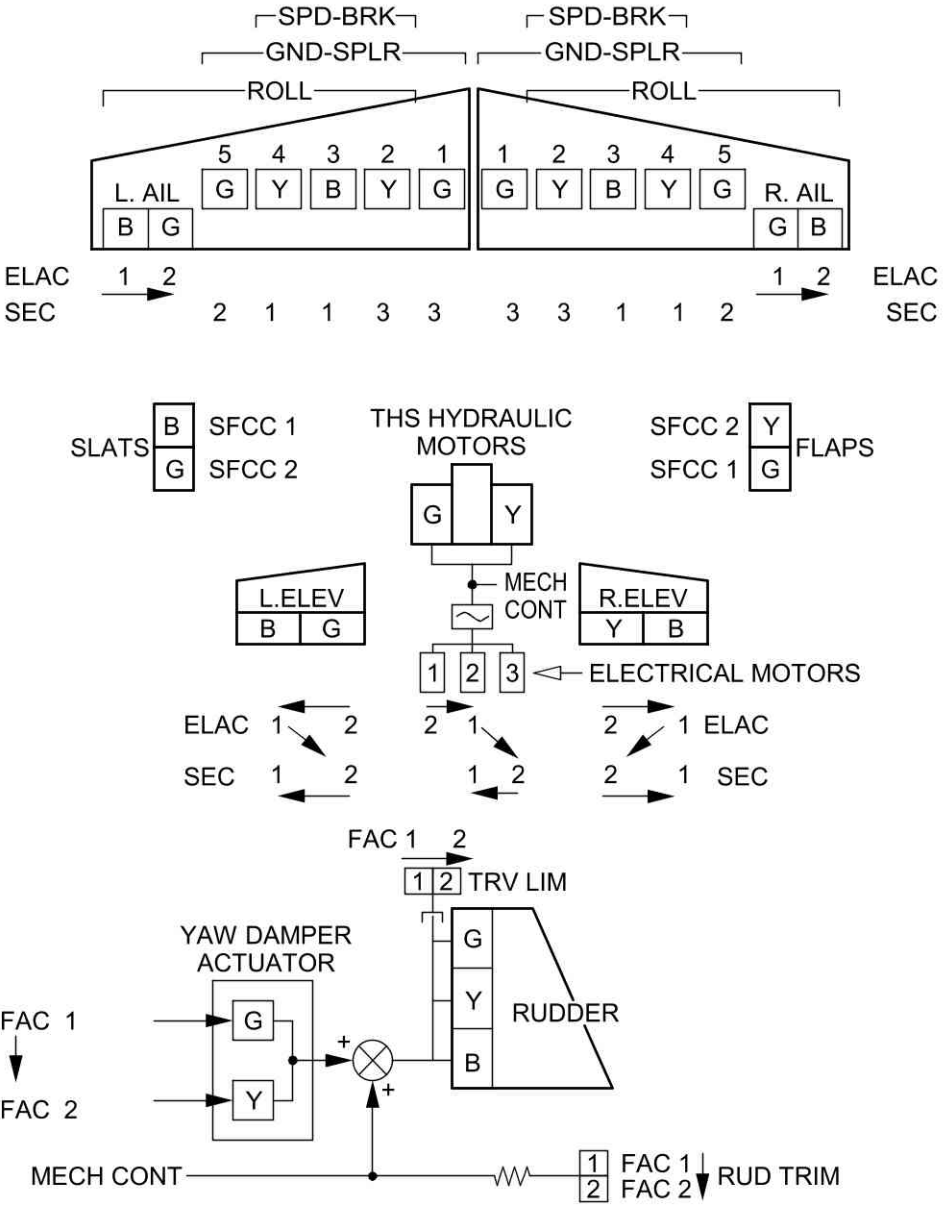
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-41 Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan

Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.00
Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan.....41.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSU**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HSU**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSU**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSU**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSU**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HSU**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB41 Issue 1.0
ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 204.
This OEB is issued to inform the operators of the following: Erroneous alternate (ALTN) fuel predictions are experienced when the flight crew modifies a company route (CO RTE) previously inserted in the alternate Flight Plan (F-PLN).
This OEB provides an explanation and operational recommendations in case of erroneous ALTN fuel predictions.

Applicable to: Aircraft with Honeywell FMGC Release 1A "H2" (MOD 38778, Airbus SB A320 22-1269 and MOD 38779, Airbus SB A320 22-1270)

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013616.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HSU**				
	OEBPROC-41		**Erroneous Alternate Fuel Predictions Upon Modification of a Company Route in the Alternate Flight Plan**	00013617.0001001	03 AUG 12
	Criteria: P10763 **Applicable to: B-HSU**				

ERRONEOUS ALTERNATE FUEL PREDICTIONS UPON MODIFICATION OF A COMPANY ROUTE IN THE ALTERNATE FLIGHT PLAN

ECAM ENTRY

None

PROCEDURE

This OEB PROC N°41 is issued to provide flight crews with the following recommendations:
This procedure only applies when a CO RTE is used for ALTN F-PLN. In the case of ALTN fuel predictions erroneously set to zero further to a modification of this ALTN F-PLN:

ENTER manually a waypoint in the en-route F-PLN (neither in the departure, nor in the arrival), to start a new computation of ALTN fuel predictions
Maintain or delete the entered waypoint at convenience
Check the ALTN fuel predictions are correct

Intentionally left blank

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSU**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSU**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
• if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSU**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HSU**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HTD

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-28 **No Localizer or Glide Slope Capture in Approach**	ALL	03 AUG 12
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HTD**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HTD**				
E	OEB28 issue 1.0	W	N	03 AUG 12	No Localizer or Glide Slope Capture in Approach
	Criteria: 34-1162 **Applicable to: B-HTD**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HTD**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HTD**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HTD**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HTD**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HTD**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-28	No Localizer or Glide Slope Capture in Approach	03 AUG 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTD** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	0993	HDA 0101	B-HTD	321-231

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	K2113		30 AUG 10	FUSELAGE - REAR FUSELAGE SECTION 16A - DEFINE A321 BASIC STRUCTURE
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P3341		30 AUG 10	LANDING GEAR - WHEELS AND BRAKES - INSTALL MESSIER GOODRICH WHEELS AND BRAKES ON A321
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0070		30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

LOSS OF BRAKING 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
EGPWS ALERTS 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
TCAS WARNINGS 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

7 ENG DUAL FAILURE - FUEL REMAINING 70.01
8 ENG DUAL FAILURE - NO FUEL REMAINING 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

9 **ABN-80 Miscellaneous**

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
Ditching 80.03
Forced Landing 80.04
EMER Descent 80.05
OVERWEIGHT LANDING..... 80.06
Stall Recovery 80.07
Stall Warning at Lift-Off 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	Add of HF 1
			The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	1	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	4	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	9	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG RELIGHT (in flight)	70.03	1	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	2	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.

Localization Title	Page	ID	Reason
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
	AFT CRG ISOL VALVE	Norm	Inop	Inop
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
HYD	FIRE VALVES	Norm	Norm	Norm
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK USABLE BY GRAVITY: 2 t (4 400 lb) UNUSABLE
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

● **If fuel vapors:**

CAB FANS.....ON
PACK 1+2..... OFF

● **If no fuel vapors:**

CAB FANS.....OFF
ECON FLOW..... OFF

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

● **At FL 100 or MEA**

APU MASTER SW (if in ELEC EMER CONF).....ON
PACK 1+2.....OFF
MODE SEL.....MAN
MAN V/S CTL..... FULL UP
RAM AIR.....ON
APU MASTER SW.....OFF

● **If smoke persists, open CKPT window:**

MAX SPEED.....200 KT
COCKPIT DOOR.....OPEN
HEADSETS.....ON
PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

- **If smoke continues:**

PACK 1.....ON
PACK 2.....OFF

- **If smoke still continues:**

PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

- **If smoke continues:**

EMER EXIT LIGHT.....ON
BUS TIE.....OFF
GEN 2.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

- **If smoke still continues or if faulty equipment confirmed isolated:**

GEN 2.....ON
BUS TIE.....AUTO

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

● **If faulty equipment not confirmed isolated, before L/G extension:**

GEN 2..... ON

BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

● **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**

ELEC EMER CONFIG..... CONSIDER

● **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**

NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF

EMER ELEC PWR.....MAN ON

● **WHEN EMER GEN AVAIL:**

APU GEN.....OFF

GEN 2.....OFF

ELEC EMER CONFIG

APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

● **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**

GEN 2.....ON

EMER ELEC GEN 1 LINE.....ON

● **WHEN A/C IS STOPPED:**

ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">215 kt</td><td rowspan="3">195 kt</td><td>190 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">190 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">215 kt</td><td>215 kt</td><td>195 kt</td><td>190 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">190 kt</td><td>190 kt</td><td>190 kt</td><td>190 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON
CTR TK L+R XFR..... OFF

- **On the lighter side:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS..... ON
  CTR TK L+R XFR.....ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- A tank is overflowing (due to pipe rupture in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each wing tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK L+R XFR..... OFF

Each engine is fed via its associated wing tank only.

WING TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each wing tank.

■ CASE 1 : IF ONE WING TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the wing tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  CTR TK L+R XFR..... ON
  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The wing tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER
CTR TK XFR (non-leaking side).....ON

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2 : IF BOTH WING TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**
  APU (if ON).....OFF
  This prevents additional fuel loss through the APU feeding line.
- **When fuel quantity in one wing tank is less than 3 t (6 600 lb):**
  CTR TK L+R XFR..... ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF

Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**

  CG location (if possible).....AFT

  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**

  FUEL IMBALANCE.....CONSIDER

  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE

- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**

  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**

  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

1

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

- **If "H" is written on the "5" key:**

  H KEY..... PRESS
  Degree marker, 0 decimal point, ENT and CLR lights come on.
  A/C HEADING..... ENTER

- **If "H" is not written on the "5" key:**

  A/C HEADING..... ENTER
  Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
  Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
  Heading will be displayed on the associated ND.
  "HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	F	4.0 / 70.7	4.0 / 66.4	4.0 / 61.5
2	F	7.0 / 68.9	7.0 / 64.6	7.0 / 59.9
1 + F	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
1	S	7.5 / 65.5	7.5 / 61.4	7.5 / 56.5
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

4 ## WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	270 kt	8.5 / CLB	9.0 / CLB	10.0 / CLB
FL 50 - FL 100		8.0 / CLB	8.0 / CLB	9.0 / CLB
FL 100 - FL 150		7.0 / CLB	7.0 / CLB	8.0 / CLB
FL 150 - FL 200		6.0 / CLB	6.0 / CLB	6.5 / CLB
FL 200 - FL 250	300 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
FL 250 - FL 280		3.5 / CLB	3.0 / CLB	3.0 / CLB
Above FL 280	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

7 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Above FL 280	M 0.76	-1.0 / IDLE	-1.5 / IDLE	-2.0 / IDLE
FL 280 - FL 200	300 kt	-0.5 / IDLE	-1.5 / IDLE	-2.5 / IDLE
FL 200 - FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-1.5 / IDLE
Below FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-2.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.0 / IDLE	2.0 / IDLE

8 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.0 / 63.4	5.0 / 59.4	5.0 / 54.6
1	S	7.5 / 65.6	7.5 / 61.4	7.5 / 56.6
1 + F (1)	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
2	F	7.0 / 68.5	7.0 / 64.7	7.0 / 59.9
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	4.0 / 74.8	4.0 / 71.0	4.0 / 65.8

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

9

FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	2.0 / 60.0	2.0 / 56.0	1.5 / 51.6

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ **If ENG1 BLEED was lost due to a:**

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **If ENG 2 BLEED was lost due to a:**

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● **AT, OR BELOW, FL200 :**

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● **IF ICE ACCRETION**

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ **In all other cases :**

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● **If both packs are available :**

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ **If ENG 1 BLEED is lost first :**

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ **If ENG 2 BLEED is lost first :**

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE.....OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 60 000 kg/132 000 lb	*-2.5*
70 000 kg/154 000 lb	*-1.5*
80 000 kg/176 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.4 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
94	*251*	*261*	*271*
92	*248*	*258*	*268*
88	*242*	*252*	*262*
86	*239*	*249*	*259*
84	*236*	*246*	*256*
82	*233*	*243*	*253*
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 and L/G DOWN) will be approximately 1.1 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK.....ON

  ATC.....NOTIFY

  FIRE pushbutton (ENG and APU).....PUSH

  AGENTS (ENG and APU).....DISCH

  Engine Agent 2 is not available.

  - **If Evacuation required:**

    EVACUATION.....INITIATE

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

ELT ⩤ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 160 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**
L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU)..... PUSH
AGENT (ENG and APU)..... DISCH
Engine Agent 2 is not available.
EVACUATION..... INITIATE
ELT ⩤ ..... CHECK EMITTING
If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....240 KT/GREEN DOT

Initially, fly 240 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⋘ /ATC1.....USE
ATC..... NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT..... PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3; L/G DOWN), will be approximately 1.1 N/m per 1 000 ft (with no wind).*

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....160 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt.

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank.....PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard ″USE MAN PITCH TRIM″ on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever.....DOWN
    APPROACH SPEED.....ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

GND SPLR.....ARM
MAX BRK PR.....1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK.....ON
  ATC.....NOTIFY
  - **If Evacuation required :**
    EVACUATION.....INITIATE
    ELT ⋘.....CHECK EMITTING
    If not, switch on the transmitter

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

■ **If Evacuation not required :**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY

EVACUATION..... INITIATE

ELT ⋖ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

1 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

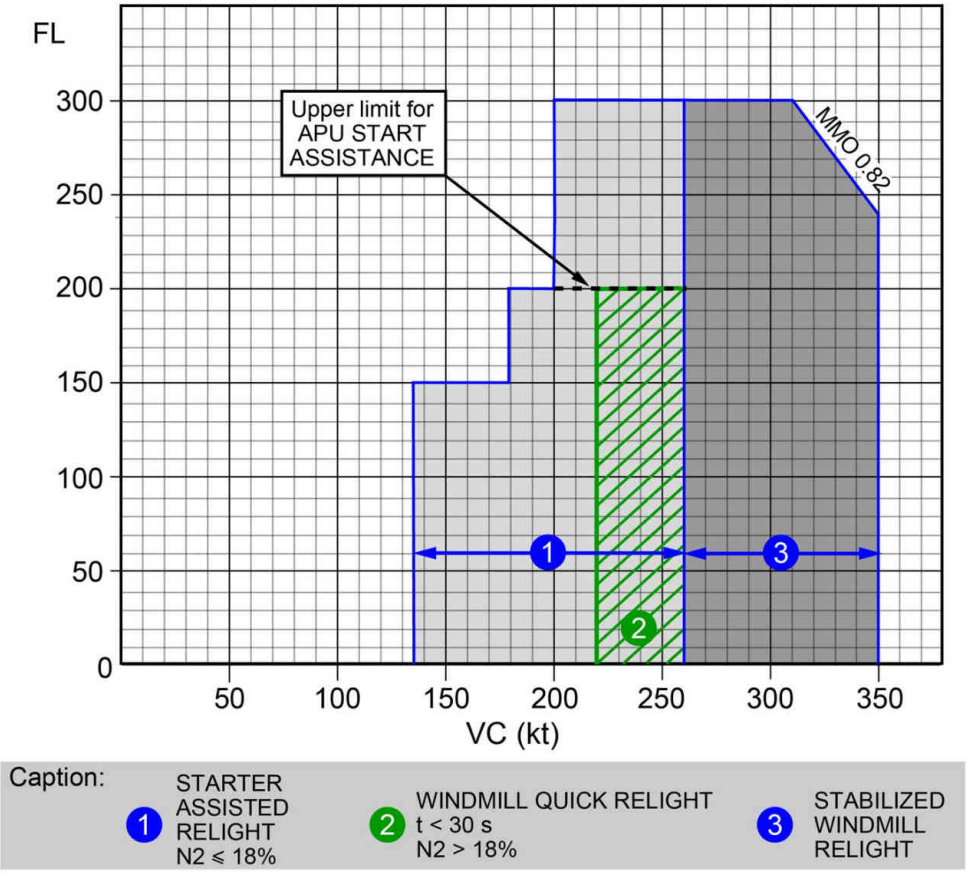
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**
ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**
ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**
THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**
Continue engine operation.

ENG TAILPIPE FIRE

2

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	76	74	71	68	64	61	58	54
5	76	74	71	68	64	61	56	52
10	76	74	71	68	64	59	54	
15	76	74	71	67	61	57	52	
20	76	74	69	64	59	54		
25	76	71	66	61	56			
30	73	68	64	59	54			
35	69	65	61	57	52			
40	66	62	59	55				
45	63	60	57					
50	60	57						
55	57							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

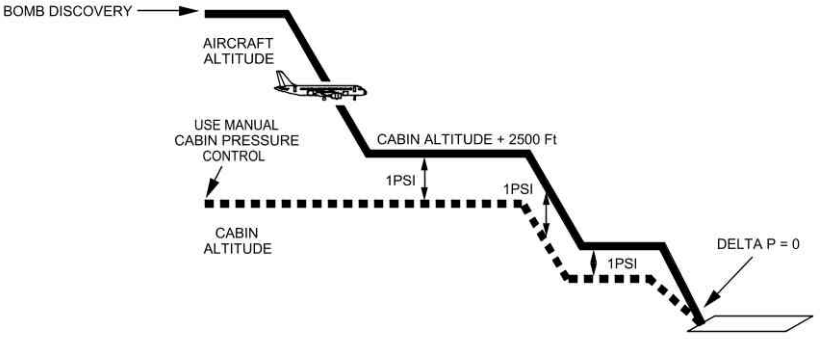
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF
  FLAPS (fuel permitting)..... AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.
PORTABLE ELECTRONIC DEVICES..... SWITCH OFF
The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

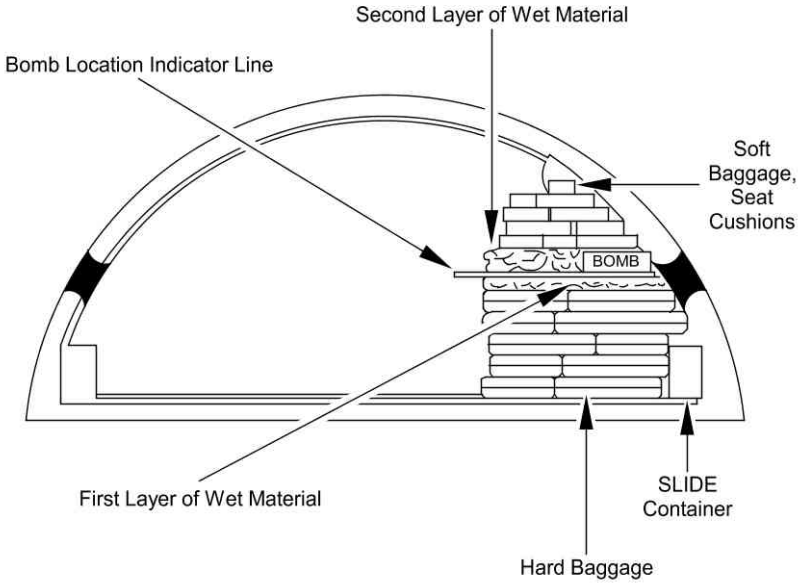
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SELECT 00
BARO.....SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS..... MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: At very high weights, VFE CONF1 is close to VLS clean. To select CONF1, deselect A/THR, decelerate to (or slightly below) VLS and select CONF1 when below VFE. When established at CONF1, the crew can re-engage the A/THR and use managed speed again

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	92	88	82	76	70	65	60	55
15	92	88	82	76	70	65	60	55
20	92	88	82	76	70	65	60	55
25	92	87	80	75	69	64	59	
30	92	85	79	73	68			
35	88	82	76	70	65			
40	85	79	73	68				
45	82	75	70					
50	78	72						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
ECON FLOW.....OFF

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to the QRH ABN 34 Unreliable Speed Indication / ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost, Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*

- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
  2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in wing tank	GALLEY (OFF)
	Fuel temp lower than -40 °C in wing tank	Consider descending to a lower altitude, and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G01 on 49VU, M06 on 121VU. G02 on 49VU, M07 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M06, M07, G01, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M07 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M06 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M07, G02 - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁⋘) of the FAP` in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication	FQIC	**On ground, or in flight:** - Pull the C/B of the affected channel: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) - Wait 5 s, before pushing the C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A321..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A321..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A321	1/2	1	**20 Sep 2012 : Modification of content of the element 20803157.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits:
    - AUTOLAND (HWC30 / TWC10 / XWC20)
    - MANUAL LAND - CAT II (HWC40 / TWC10 / XWC25)
    - OEI ROLLOUT (IDLE REV ONLY XWC15)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

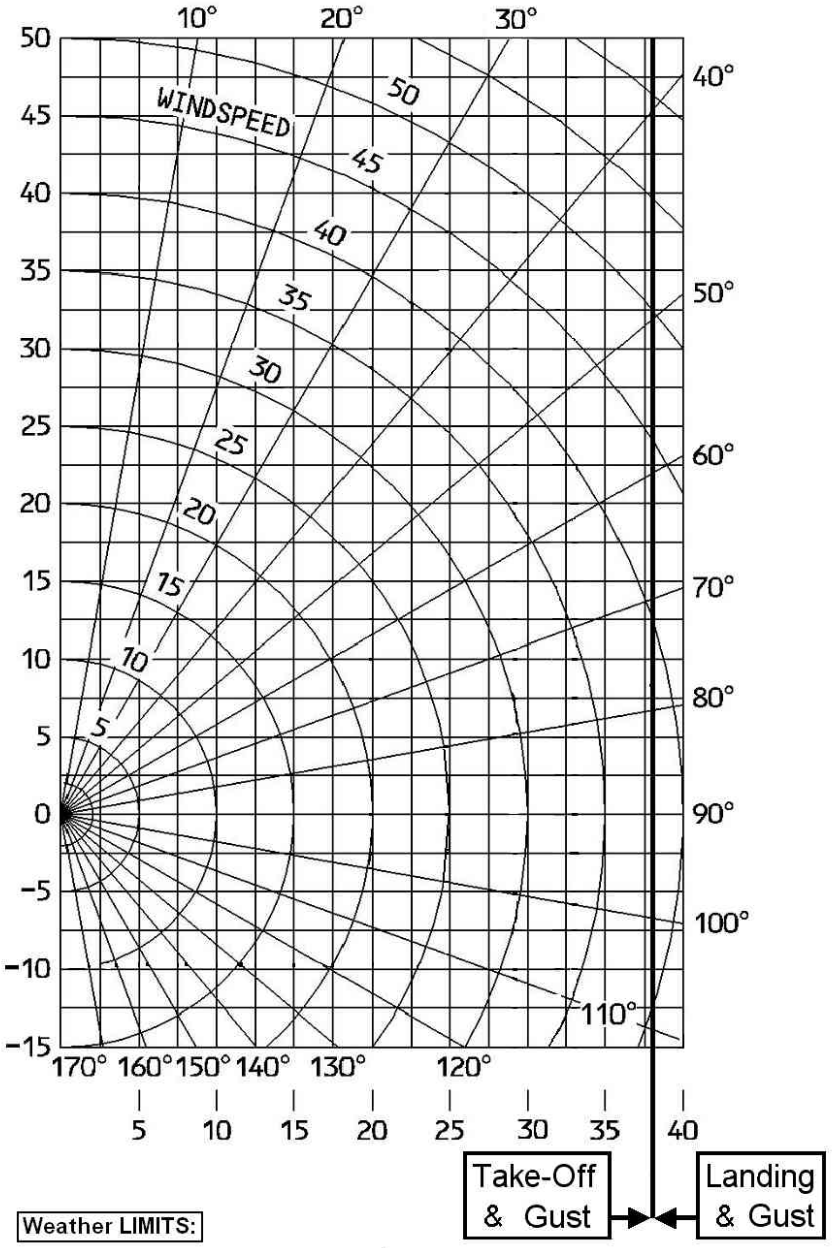
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A321



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind
15 knot x-wind limit for OEI Rollout with IDLE reverse only.

CAT II No Autoland
40 knots headwind
25 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A321

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)					
W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
52	130	168	188	121	116
56	135	174	194	125	121
60	140	180	200	130	125
64	144	186	206	134	129
68	149	192	212	138	133
72	153	197	218	142	137
76	157	203	224	146	141
80	161	208	230	150	144
84	165	213	236	154	148
88	169	218	242	157	151
92	173	223	248	161	155
94	175	226	251	163	157

(1) Above FL 200 add 1 kt per additional 1 000 ft.

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

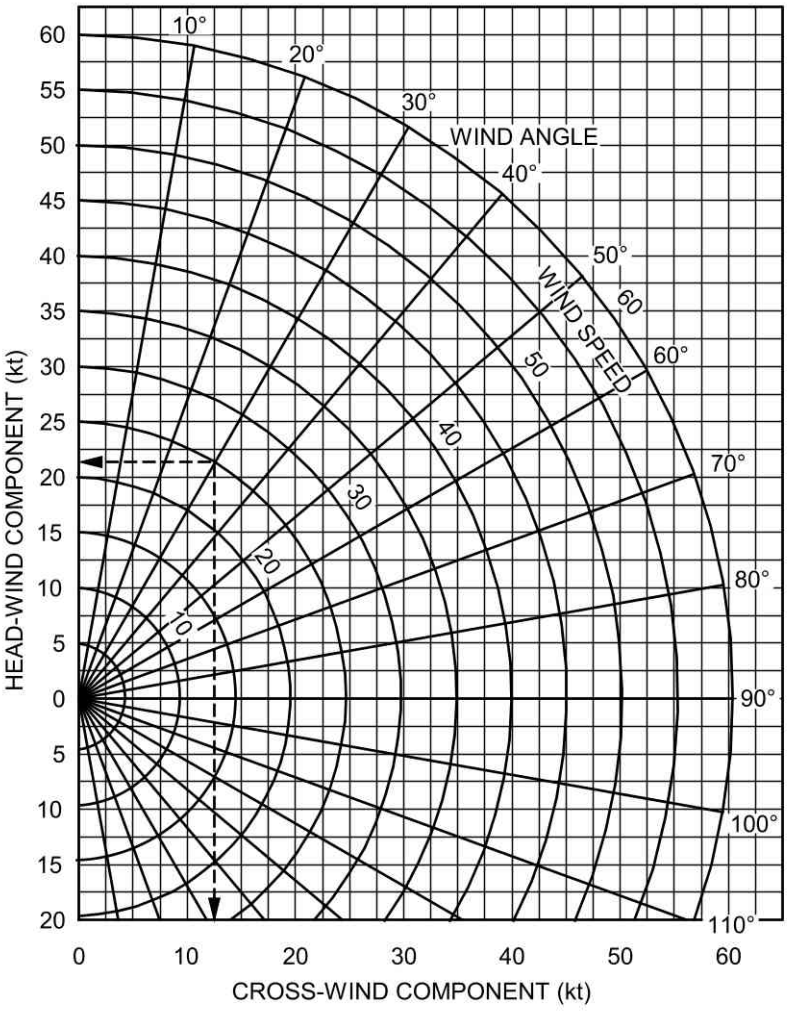
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VLS CONF FULL (kt) (=VREF)	116	119	123	127	131	135	139	143	146	150	153	157
VLS CONF3 (kt)	121	123	128	132	136	140	144	148	152	156	159	163

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 210**	- 10	+ 60	+ 80	+ 50	+ 140	+ 50	+ 30	- 20
AUTOBRAKE MED	**1 480**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 260 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 290**	- 10	+ 60	+ 80	+ 60	+ 160	+ 50	+ 30	- 30
AUTOBRAKE MED	**1 570**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 270 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 520**	- 10	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
AUTOBRAKE MED	**1 560**	- 10	+ 50	+ 110	+ 80	+ 210	+ 70	+ 60	- 20
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 650**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 690**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 40
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 420 m**
Autoland	**+ 330 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 730**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
AUTOBRAKE MED	**1 780**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
AUTOBRAKE LOW	**2 100**	- 20	+ 40	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 450 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 860**	- 10	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
AUTOBRAKE MED	**1 900**	- 10	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 120
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 90	+ 220	+ 80	+ 50	- 10

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 320 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 930**	- 10	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 130
AUTOBRAKE MED	**1 970**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 140
AUTOBRAKE LOW	**2 160**	- 20	+ 50	+ 140	+ 80	+ 230	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 430 m**
Autoland	**+ 320 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 070**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 110	- 150
AUTOBRAKE MED	**2 110**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 160
AUTOBRAKE LOW	**2 310**	- 20	+ 50	+ 140	+ 90	+ 240	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 330 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 210**	- 20	+ 70	+ 170	+ 130	+ 360	+ 120	+ 160	- 160
AUTOBRAKE MED	**2 240**	- 20	+ 70	+ 150	+ 130	+ 370	+ 110	+ 160	- 160
AUTOBRAKE LOW	**2 270**	- 20	+ 70	+ 150	+ 140	+ 370	+ 100	+ 170	- 50

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 390 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 430**	- 30	+ 80	+ 170	+ 150	+ 390	+ 130	+ 180	- 190
AUTOBRAKE MED	**2 460**	- 30	+ 80	+ 150	+ 150	+ 400	+ 120	+ 190	- 190
AUTOBRAKE LOW	**2 480**	- 30	+ 80	+ 170	+ 150	+ 390	+ 120	+ 190	- 70

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 410 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 430**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 440
AUTOBRAKE MED	**3 450**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 450
AUTOBRAKE LOW	**3 480**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 380 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 700**	- 30	+ 70	+ 160	+ 200	+ 580	+ 150	+ 850	- 490
AUTOBRAKE MED	**3 720**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 850	- 510
AUTOBRAKE LOW	**3 750**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 400 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VREF = VLS CONF FULL (kt)	116	119	123	127	131	135	139	143	146	150	153	157

+

ΔVREF
Refer to the applicable Landing Distance table

+

APPRoach CORrection	
ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP
VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)
• If APPR COR > 1/3 Headwind component: Correct the landing distance (**SPD** column) with **SPD = APPR COR** • If APPR COR = 1/3 Headwind component: No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC BUS 2 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 40
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 50
DC BUS 1+2 FAULT	FULL	0	**1 860**	- 20	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6	**2 020**	- 20	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 410**	- 10	+ 50	+ 80	+ 70	+ 170	+ 50	+ 30	- 30
	3	16	**1 490**	- 10	+ 60	+ 90	+ 70	+ 170	+ 50	+ 30	- 40
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 870**	- 10	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6 / 140kt	**2 030**	- 10	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 080**	- 10	+ 80	+ 110	+ 80	+ 210	+ 80	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 70
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 80
DC BUS 2 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 100
	3	6	**2 010**	- 20	+ 70	+ 180	+ 120	+ 280	+ 100	+ 110	- 120
DC BUS 1+2 FAULT	FULL	0	**2 010**	- 20	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6	**2 210**	- 30	+ 80	+ 180	+ 120	+ 300	+ 110	+ 140	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 670**	- 20	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 70
	3	6	**1 820**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 80	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 860**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 90
	3	16	**2 020**	- 20	+ 60	+ 140	+ 110	+ 250	+ 90	+ 80	- 110
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 020**	- 10	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 220**	- 20	+ 80	+ 170	+ 120	+ 300	+ 100	+ 140	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 300**	- 20	+ 80	+ 160	+ 130	+ 300	+ 100	+ 130	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 120
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
DC BUS 2 FAULT	FULL	0	**2 060**	- 20	+ 40	+ 130	+ 90	+ 220	+ 70	+ 110	- 160
	3	6	**2 230**	- 20	+ 40	+ 140	+ 90	+ 230	+ 80	+ 130	- 190
DC BUS 1+2 FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 240**	- 20	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 890**	- 10	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 030**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 070**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 150
	3	16	**2 220**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 170
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 070**	- 10	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6 / 140kt	**2 250**	- 10	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 310**	- 10	+ 60	+ 130	+ 100	+ 230	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
DC BUS 2 FAULT	FULL	0	**2 320**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 160	- 230
	3	6	**2 530**	- 20	+ 50	+ 150	+ 110	+ 270	+ 90	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 340**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 550**	- 20	+ 50	+ 160	+ 110	+ 270	+ 100	+ 190	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 140**	- 20	+ 40	+ 120	+ 90	+ 250	+ 70	+ 130	- 190
	3	6	**2 290**	- 20	+ 40	+ 130	+ 90	+ 250	+ 90	+ 150	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 330**	- 20	+ 40	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	16	**2 490**	- 20	+ 40	+ 120	+ 110	+ 250	+ 90	+ 150	- 240
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 340**	- 10	+ 50	+ 150	+ 100	+ 260	+ 90	+ 170	INOP
	3	6 / 140kt	**2 560**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 190	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 600**	- 10	+ 50	+ 150	+ 110	+ 270	+ 100	+ 180	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 210
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 240
DC BUS 2 FAULT	FULL	0	**2 770**	- 30	+ 90	+ 240	+ 190	+ 470	+ 170	+ 300	- 300
	3	6	**3 160**	- 40	+ 100	+ 260	+ 220	+ 540	+ 160	+ 380	- 390
DC BUS 1+2 FAULT	FULL	0	**2 810**	- 30	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6	**3 200**	- 40	+ 100	+ 270	+ 230	+ 560	+ 170	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 170	+ 440	+ 120	+ 220	- 250
	3	6	**2 770**	- 30	+ 80	+ 200	+ 180	+ 470	+ 140	+ 260	- 290
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 800**	- 30	+ 80	+ 180	+ 180	+ 450	+ 140	+ 250	- 290
	3	16	**3 060**	- 30	+ 80	+ 190	+ 190	+ 470	+ 150	+ 270	- 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 820**	- 10	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6 / 140kt	**3 210**	- 20	+ 100	+ 270	+ 230	+ 570	+ 170	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**3 260**	- 30	+ 100	+ 230	+ 220	+ 510	+ 170	+ 370	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 530
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 590
DC BUS 2 FAULT	FULL	0	**4 470**	- 30	+ 70	+ 220	+ 240	+ 710	+ 190	+ 1 550	- 990
	3	6	**4 980**	- 40	+ 80	+ 240	+ 270	+ 750	+ 200	+ 1 790	- 1 180
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**4 260**	- 30	+ 50	+ 180	+ 190	+ 730	+ 160	+ 2 020	- 1 170
	3	6	**4 570**	- 30	+ 50	+ 190	+ 210	+ 750	+ 180	+ 2 130	- 1 280
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**4 530**	- 30	+ 50	+ 180	+ 210	+ 740	+ 180	+ 2 010	- 1 220
	3	16	**4 860**	- 30	+ 50	+ 180	+ 220	+ 750	+ 190	+ 2 130	- 1 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 290**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 30
	3	6	**1 380**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 430**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
THREE SPLR FAULT	FULL	0	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 40
	3	6	**1 500**	- 10	+ 50	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
ALL SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
GND SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
SEC 1 or SEC 3 FAULT	FULL	0	**1 320**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 50	+ 100	+ 60	+ 150	+ 60	+ 40	- 30
SEC 2 FAULT	FULL	0	**1 270**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 350**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SEC 2+3 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
SEC 1+3 FAULT	FULL	0	**1 460**	- 10	+ 50	+ 110	+ 60	+ 150	+ 50	+ 40	- 50
	3	6	**1 550**	- 10	+ 50	+ 120	+ 70	+ 150	+ 60	+ 50	- 60
SEC 1+2 FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 450**	- 10	+ 50	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
RUDDER JAM	FULL	0	**1 430**	- 10	+ 60	+ 120	+ 90	+ 190	+ 60	+ 50	- 30
	3	6	**1 570**	- 10	+ 70	+ 120	+ 90	+ 200	+ 70	+ 50	- 40
SEC 1+2+3 FAULT	3	10	**1 700**	- 10	+ 50	+ 140	+ 70	+ 160	+ 70	+ 60	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 660**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
	3	6	**1 830**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 920**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 80	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 800**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 80
	3	6	**1 990**	- 20	+ 60	+ 160	+ 120	+ 270	+ 90	+ 100	- 100
THREE SPLR FAULT	FULL	0	**1 890**	- 20	+ 60	+ 170	+ 110	+ 270	+ 90	+ 100	- 90
	3	6	**2 090**	- 20	+ 70	+ 180	+ 130	+ 290	+ 100	+ 120	- 110
ALL SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
GND SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
SEC 1 or SEC 3 FAULT	FULL	0	**1 720**	- 20	+ 60	+ 140	+ 90	+ 240	+ 80	+ 80	- 70
	3	6	**1 870**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 80
SEC 2 FAULT	FULL	0	**1 620**	- 10	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 50
	3	6	**1 770**	- 20	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 70
SEC 2+3 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 100
SEC 1+3 FAULT	FULL	0	**1 990**	- 20	+ 70	+ 190	+ 120	+ 290	+ 100	+ 120	- 130
	3	6	**2 200**	- 20	+ 70	+ 210	+ 140	+ 310	+ 110	+ 150	- 160
SEC 1+2 FAULT	FULL	0	**1 810**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 90
	3	6	**1 960**	- 20	+ 60	+ 160	+ 110	+ 270	+ 100	+ 100	- 110
RUDDER JAM	FULL	0	**1 820**	- 20	+ 60	+ 140	+ 110	+ 270	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 160	+ 130	+ 290	+ 100	+ 110	- 100
SEC 1+2+3 FAULT	3	10	**2 500**	- 30	+ 80	+ 260	+ 160	+ 350	+ 140	+ 210	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 870**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 030**	- 20	+ 40	+ 110	+ 80	+ 200	+ 80	+ 100	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 110**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 020**	- 20	+ 40	+ 130	+ 80	+ 210	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 150
THREE SPLR FAULT	FULL	0	**2 120**	- 20	+ 40	+ 140	+ 90	+ 220	+ 80	+ 120	- 150
	3	6	**2 300**	- 20	+ 40	+ 150	+ 100	+ 230	+ 80	+ 130	- 170
ALL SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
GND SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
SEC 1 or SEC 3 FAULT	FULL	0	**1 940**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
	3	6	**2 080**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 830**	- 10	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 100
	3	6	**1 970**	- 20	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 110
SEC 2+3 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 130	+ 80	+ 210	+ 80	+ 110	- 130
	3	6	**2 220**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 220**	- 20	+ 40	+ 160	+ 100	+ 230	+ 80	+ 140	- 200
	3	6	**2 410**	- 20	+ 50	+ 160	+ 110	+ 240	+ 90	+ 160	- 230
SEC 1+2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 150
	3	6	**2 170**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 110	- 170
RUDDER JAM	FULL	0	**2 040**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 110	- 120
	3	6	**2 220**	- 20	+ 50	+ 130	+ 110	+ 250	+ 90	+ 130	- 150
SEC 1+2+3 FAULT	3	10	**2 690**	- 20	+ 50	+ 200	+ 120	+ 260	+ 110	+ 200	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 090**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 120	- 140
	3	6	**2 280**	- 20	+ 40	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 360**	- 20	+ 40	+ 120	+ 100	+ 240	+ 90	+ 140	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 270**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 180
	3	6	**2 470**	- 20	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 210
THREE SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 200
	3	6	**2 600**	- 20	+ 50	+ 160	+ 120	+ 270	+ 90	+ 190	- 230
ALL SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
GND SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
SEC 1 or SEC 3 FAULT	FULL	0	**2 180**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 330**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 180
SEC 2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 300**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 180
	3	6	**2 500**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 510**	- 20	+ 50	+ 170	+ 110	+ 270	+ 100	+ 200	- 260
	3	6	**2 730**	- 20	+ 50	+ 180	+ 130	+ 280	+ 100	+ 220	- 310
SEC 1+2 FAULT	FULL	0	**2 290**	- 20	+ 50	+ 140	+ 100	+ 250	+ 90	+ 150	- 210
	3	6	**2 440**	- 20	+ 50	+ 140	+ 110	+ 260	+ 90	+ 160	- 220
RUDDER JAM	FULL	0	**2 260**	- 20	+ 50	+ 130	+ 120	+ 280	+ 90	+ 150	- 170
	3	6	**2 470**	- 20	+ 60	+ 130	+ 130	+ 290	+ 90	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**3 060**	- 30	+ 60	+ 230	+ 140	+ 310	+ 120	+ 290	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 450**	- 30	+ 80	+ 160	+ 150	+ 400	+ 110	+ 190	- 170
	3	6	**2 760**	- 30	+ 80	+ 200	+ 170	+ 430	+ 150	+ 250	- 220
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 880**	- 30	+ 80	+ 180	+ 180	+ 440	+ 130	+ 260	- 240
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 690**	- 30	+ 90	+ 210	+ 170	+ 450	+ 150	+ 260	- 220
	3	6	**3 040**	- 30	+ 100	+ 240	+ 200	+ 480	+ 170	+ 340	- 280
THREE SPLR FAULT	FULL	0	**2 890**	- 30	+ 100	+ 260	+ 200	+ 480	+ 160	+ 320	- 260
	3	6	**3 250**	- 40	+ 100	+ 270	+ 230	+ 530	+ 180	+ 410	- 330
ALL SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
GND SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
SEC 1 or SEC 3 FAULT	FULL	0	**2 580**	- 30	+ 80	+ 190	+ 170	+ 430	+ 120	+ 230	- 200
	3	6	**2 810**	- 30	+ 80	+ 200	+ 180	+ 440	+ 150	+ 260	- 230
SEC 2 FAULT	FULL	0	**2 380**	- 30	+ 70	+ 170	+ 140	+ 380	+ 120	+ 180	- 160
	3	6	**2 620**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 220	- 200
SEC 2+3 FAULT	FULL	0	**2 740**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 230
	3	6	**3 110**	- 40	+ 100	+ 250	+ 210	+ 510	+ 160	+ 360	- 300
SEC 1+3 FAULT	FULL	0	**3 070**	- 40	+ 100	+ 280	+ 220	+ 520	+ 170	+ 400	- 360
	3	6	**3 470**	- 40	+ 110	+ 290	+ 260	+ 570	+ 170	+ 510	- 460
SEC 1+2 FAULT	FULL	0	**2 750**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 270
	3	6	**2 990**	- 30	+ 90	+ 220	+ 200	+ 480	+ 160	+ 310	- 310
RUDDER JAM	FULL	0	**2 550**	- 30	+ 90	+ 170	+ 180	+ 430	+ 120	+ 220	- 190
	3	6	**2 820**	- 30	+ 90	+ 190	+ 200	+ 460	+ 140	+ 270	- 240
SEC 1+2+3 FAULT	3	10	**4 000**	- 50	+ 130	+ 370	+ 310	+ 640	+ 230	+ 710	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 720**	- 30	+ 70	+ 170	+ 200	+ 590	+ 150	+ 880	- 500
	3	6	**4 150**	- 40	+ 80	+ 190	+ 220	+ 620	+ 180	+ 1 030	- 600
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**4 270**	- 40	+ 80	+ 180	+ 230	+ 630	+ 170	+ 1 040	- 610
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 120**	- 40	+ 80	+ 200	+ 230	+ 630	+ 170	+ 1 090	- 610
	3	6	**4 580**	- 40	+ 90	+ 230	+ 260	+ 660	+ 190	+ 1 260	- 720
THREE SPLR FAULT	FULL	0	**4 440**	- 40	+ 90	+ 230	+ 250	+ 660	+ 190	+ 1 280	- 700
	3	6	**4 900**	- 40	+ 90	+ 260	+ 280	+ 690	+ 210	+ 1 450	- 810
ALL SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
GND SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
SEC 1 or SEC 3 FAULT	FULL	0	**3 940**	- 30	+ 80	+ 190	+ 210	+ 610	+ 170	+ 990	- 560
	3	6	**4 220**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 060	- 610
SEC 2 FAULT	FULL	0	**3 640**	- 30	+ 70	+ 160	+ 190	+ 590	+ 150	+ 840	- 480
	3	6	**3 930**	- 30	+ 70	+ 170	+ 210	+ 600	+ 160	+ 920	- 540
SEC 2+3 FAULT	FULL	0	**4 220**	- 40	+ 80	+ 210	+ 240	+ 640	+ 170	+ 1 150	- 640
	3	6	**4 680**	- 40	+ 90	+ 240	+ 270	+ 670	+ 200	+ 1 320	- 750
SEC 1+3 FAULT	FULL	0	**4 710**	- 40	+ 90	+ 260	+ 270	+ 690	+ 200	+ 1 450	- 870
	3	6	**5 200**	- 50	+ 100	+ 280	+ 310	+ 720	+ 220	+ 1 660	- 1 030
SEC 1+2 FAULT	FULL	0	**4 240**	- 40	+ 80	+ 220	+ 240	+ 640	+ 180	+ 1 160	- 690
	3	6	**4 490**	- 40	+ 80	+ 210	+ 250	+ 660	+ 190	+ 1 210	- 740
RUDDER JAM	FULL	0	**3 740**	- 40	+ 90	+ 170	+ 230	+ 640	+ 160	+ 880	- 500
	3	6	**4 070**	- 40	+ 90	+ 190	+ 250	+ 660	+ 190	+ 970	- 560
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 160**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 60	- 40
FLAPS<1	SLATS<1	3	45	**2 060**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 50	- 40
	SLATS≥1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 730**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 40
	SLATS≥1	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 630**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 30
	SLATS≥1	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
FLAPS=3	SLATS<1	3	25	**1 600**	- 10	+ 60	N/A	+ 70	+ 170	+ 60	+ 30	- 30
	1≤SLATS≤3	3	10	**1 390**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 320**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	SLATS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS FAULT	FLAPS<1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
	1≤FLAPS<2	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
	2≤FLAPS<3	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
	FLAPS=3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	FLAPS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
SLATS FAULT	SLATS<1	3	25	**1 590**	- 10	+ 50	N/A	+ 70	+ 160	+ 60	+ 40	- 30
	1≤SLATS≤3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 330**	- 10	+ 50	+ 80	+ 60	+ 160	+ 50	+ 30	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 770**	- 30	+ 70	N/A	+ 160	+ 300	+ 130	+ 110	- 140
FLAPS<1	SLATS<1	3	45	**2 650**	- 20	+ 70	N/A	+ 150	+ 290	+ 130	+ 110	- 130
	SLATS≥1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 280**	- 20	+ 60	N/A	+ 130	+ 260	+ 100	+ 90	- 100
	SLATS≥1	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
2≤FLAPS<3	SLATS<1	3	25	**2 150**	- 20	+ 60	N/A	+ 120	+ 250	+ 100	+ 80	- 90
	SLATS≥1	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
FLAPS=3	SLATS<1	3	25	**2 100**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 810**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 760**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
	SLATS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
FLAPS FAULT	FLAPS<1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
	2≤FLAPS<3	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
	FLAPS=3	3	10	**1 800**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	FLAPS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
SLATS FAULT	SLATS<1	3	25	**2 090**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 80
	1≤SLATS≤3	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 800**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
FLAPS<1	SLATS<1	3	45	**2 710**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
	SLATS≥1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
1≤FLAPS<2	SLATS<1	3	30	**2 420**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 150
	SLATS≥1	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
2≤FLAPS<3	SLATS<1	3	25	**2 310**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	SLATS≥1	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
FLAPS=3	SLATS<1	3	25	**2 260**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 140
	1≤SLATS≤3	3	10	**2 010**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 120
	SLATS>3	3	5	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 110
FLAPS>3	1≤SLATS≤3	FULL	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
FLAPS FAULT	FLAPS<1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	1≤FLAPS<2	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
	2≤FLAPS<3	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS=3	3	10	**2 010**	- 20	+ 40	+ 90	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
SLATS FAULT	SLATS<1	3	25	**2 240**	- 20	+ 40	N/A	+ 90	+ 200	+ 70	+ 80	- 120
	1≤SLATS≤3	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 910**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 180**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 260
FLAPS<1	SLATS<1	3	45	**3 080**	- 20	+ 50	N/A	+ 120	+ 270	+ 110	+ 160	- 250
	SLATS≥1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
1≤FLAPS<2	SLATS<1	3	30	**2 730**	- 20	+ 40	N/A	+ 110	+ 250	+ 100	+ 150	- 220
	SLATS≥1	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
2≤FLAPS<3	SLATS<1	3	25	**2 600**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 200
	SLATS≥1	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
FLAPS=3	SLATS<1	3	25	**2 530**	- 20	+ 40	N/A	+ 100	+ 240	+ 90	+ 130	- 190
	1≤SLATS≤3	3	10	**2 260**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	SLATS>3	3	5	**2 160**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
FLAPS>3	1≤SLATS≤3	FULL	10	**2 200**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 120	- 150
	SLATS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
FLAPS FAULT	FLAPS<1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
	1≤FLAPS<2	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
	2≤FLAPS<3	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
	FLAPS=3	3	10	**2 250**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	FLAPS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
SLATS FAULT	SLATS<1	3	25	**2 490**	- 20	+ 40	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150
	SLATS>3	3	5	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 390**	- 40	+ 100	N/A	+ 270	+ 560	+ 230	+ 420	- 480
FLAPS<1	SLATS<1	3	45	**4 240**	- 40	+ 100	N/A	+ 270	+ 560	+ 210	+ 420	- 460
	SLATS≥1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
1≤FLAPS<2	SLATS<1	3	30	**3 520**	- 40	+ 90	N/A	+ 220	+ 500	+ 160	+ 320	- 340
	SLATS≥1	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
2≤FLAPS<3	SLATS<1	3	25	**3 270**	- 30	+ 80	N/A	+ 200	+ 460	+ 160	+ 280	- 300
	SLATS≥1	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
FLAPS=3	SLATS<1	3	25	**3 090**	- 30	+ 80	N/A	+ 180	+ 430	+ 150	+ 240	- 260
	1≤SLATS≤3	3	10	**2 710**	- 30	+ 80	+ 180	+ 160	+ 430	+ 140	+ 220	- 220
	SLATS>3	3	5	**2 580**	- 30	+ 70	+ 180	+ 160	+ 430	+ 120	+ 210	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 410	+ 130	+ 190	- 190
	SLATS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
FLAPS FAULT	FLAPS<1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
	1≤FLAPS<2	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
	2≤FLAPS<3	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
	FLAPS=3	3	10	**2 710**	- 30	+ 80	+ 170	+ 170	+ 430	+ 130	+ 220	- 220
	FLAPS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
SLATS FAULT	SLATS<1	3	25	**3 020**	- 30	+ 80	N/A	+ 170	+ 390	+ 140	+ 210	- 230
	1≤SLATS≤3	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190
	SLATS>3	3	5	**2 530**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 190	- 180

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
1≤FLAPS<2	SLATS<1	3	30	**5 410**	- 30	+ 50	N/A	+ 250	+ 770	+ 210	+ 2 230	- 1 060
	SLATS≥1	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
2≤FLAPS<3	SLATS<1	3	25	**5 080**	- 30	+ 50	N/A	+ 230	+ 750	+ 190	+ 2 100	- 980
	SLATS≥1	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
FLAPS=3	SLATS<1	3	25	**4 750**	- 30	+ 50	N/A	+ 210	+ 730	+ 190	+ 1 880	- 880
	1≤SLATS≤3	3	10	**4 380**	- 30	+ 50	+ 150	+ 200	+ 730	+ 170	+ 1 910	- 820
	SLATS>3	3	5	**4 240**	- 30	+ 50	+ 160	+ 190	+ 720	+ 160	+ 1 900	- 810
FLAPS>3	1≤SLATS≤3	FULL	10	**4 180**	- 20	+ 50	+ 150	+ 190	+ 710	+ 160	+ 1 750	- 760
	SLATS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
FLAPS FAULT	FLAPS<1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
	1≤FLAPS<2	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
	2≤FLAPS<3	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
	FLAPS=3	3	10	**4 370**	- 30	+ 50	+ 160	+ 200	+ 730	+ 170	+ 1 900	- 820
	FLAPS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
SLATS FAULT	SLATS<1	3	25	**4 270**	- 40	+ 70	N/A	+ 220	+ 600	+ 180	+ 860	- 550
	1≤SLATS≤3	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510
	SLATS>3	3	5	**3 790**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 500

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 390**	- 10	+ 50	+ 90	+ 50	+ 130	+ 50	+ 40	- 40
	3	6	**1 490**	- 10	+ 50	+ 90	+ 60	+ 140	+ 50	+ 40	- 50
B SYS LO PR	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
Y SYS LO PR	FULL	0	**1 320**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 890**	- 10	+ 50	N/A	+ 70	+ 150	+ 70	+ 60	- 80
G + Y	3	30	**2 690**	- 20	+ 60	N/A	+ 110	+ 210	+ 90	+ 130	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**1 530**	- 10	+ 60	+ 100	+ 60	+ 160	+ 60	+ 40	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 810**	- 20	+ 60	+ 140	+ 100	+ 250	+ 90	+ 90	- 90
	3	6	**2 010**	- 20	+ 60	+ 160	+ 120	+ 270	+ 100	+ 100	- 120
B SYS LO PR	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 60
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
Y SYS LO PR	FULL	0	**1 730**	- 20	+ 60	+ 140	+ 100	+ 240	+ 80	+ 80	- 70
	3	6	**1 880**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 30	+ 70	N/A	+ 160	+ 320	+ 120	+ 160	- 220
G + Y	3	30	**3 090**	- 30	+ 90	N/A	+ 180	+ 340	+ 140	+ 210	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 100**	- 10	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 150

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 950**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 690**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 140	- 230
G + Y	3	30	**3 020**	- 20	+ 60	N/A	+ 130	+ 250	+ 110	+ 180	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 300**	- 10	+ 40	+ 130	+ 100	+ 230	+ 80	+ 120	- 200

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 170
	3	6	**2 350**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 200
B SYS LO PR	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 140
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 160
Y SYS LO PR	FULL	0	**2 180**	- 20	+ 40	+ 130	+ 90	+ 240	+ 80	+ 130	- 170
	3	6	**2 340**	- 20	+ 40	+ 130	+ 100	+ 250	+ 90	+ 140	- 190
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 020**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 200	- 300
G + Y	3	30	**3 400**	- 30	+ 60	N/A	+ 150	+ 290	+ 120	+ 250	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 580**	- 10	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 160	+ 420	+ 120	+ 220	- 220
	3	6	**2 850**	- 30	+ 90	+ 230	+ 180	+ 440	+ 170	+ 270	- 280
B SYS LO PR	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 180
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 210
Y SYS LO PR	FULL	0	**2 580**	- 30	+ 80	+ 200	+ 170	+ 420	+ 130	+ 230	- 220
	3	6	**2 820**	- 30	+ 90	+ 200	+ 180	+ 440	+ 150	+ 270	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 850**	- 40	+ 110	N/A	+ 250	+ 530	+ 180	+ 420	- 490
G + Y	3	30	**4 380**	- 50	+ 120	N/A	+ 290	+ 560	+ 220	+ 550	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**3 180**	- 30	+ 100	+ 220	+ 210	+ 490	+ 180	+ 350	- 380

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 860**	- 30	+ 70	+ 180	+ 210	+ 610	+ 160	+ 950	- 550
	3	6	**4 310**	- 40	+ 80	+ 200	+ 240	+ 640	+ 180	+ 1 110	- 680
B SYS LO PR	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 520
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 570
Y SYS LO PR	FULL	0	**3 950**	- 30	+ 80	+ 190	+ 220	+ 610	+ 170	+ 990	- 430
	3	6	**4 230**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 070	- 490
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	30	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**4 700**	- 30	+ 90	+ 220	+ 260	+ 670	+ 200	+ 1 250	- 670

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 750**	- 20	+ 60	+ 100	+ 70	+ 190	+ 60	+ 70	- 60
	3	6	**1 880**	- 20	+ 70	+ 100	+ 70	+ 190	+ 70	+ 80	- 70
AUTO BRK FAULT	FULL	0	**1 320**	- 10	+ 50	+ 80	+ 50	+ 140	+ 40	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 80	+ 60	+ 150	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 800**	- 20	+ 60	+ 110	+ 80	+ 230	+ 70	+ 80	- 60
	3	6	**1 940**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 90	- 70
AUTO BRK FAULT	FULL	0	**1 680**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 70	- 60
	3	6	**1 840**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 790**	- 10	+ 60	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 70	+ 100	+ 80	+ 200	+ 70	+ 80	- 100
AUTO BRK FAULT	FULL	0	**1 790**	- 10	+ 30	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 230	+ 60	+ 100	- 120
	3	6	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 150**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 380	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 180
AUTO BRK FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 370	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 510**	- 30	+ 70	+ 160	+ 180	+ 570	+ 150	+ 780	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510
AUTO BRK FAULT	FULL	0	**3 520**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 510

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 170	+ 90	+ 220	+ 90	+ 30	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 450**	- 20	+ 50	+ 160	+ 100	+ 250	+ 90	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 190	- 50
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 160	+ 200	+ 600	+ 160	+ 870	- 460
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 890**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 40	- 40
	3	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 350**	- 10	+ 50	+ 90	+ 60	+ 150	+ 60	+ 30	- 30
	3	16	**1 450**	- 10	+ 50	+ 90	+ 70	+ 160	+ 60	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 480**	- 20	+ 70	N/A	+ 130	+ 260	+ 110	+ 90	- 130
	3	10	**1 780**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 70	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 740**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 60	- 70
	3	16	**1 900**	- 20	+ 60	+ 110	+ 100	+ 230	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 560**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 170
	3	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 920**	- 10	+ 40	+ 90	+ 80	+ 190	+ 60	+ 70	- 110
	3	16	**2 060**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 860**	- 20	+ 50	N/A	+ 110	+ 240	+ 100	+ 140	- 230
	3	10	**2 190**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 160
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 130**	- 20	+ 40	+ 100	+ 80	+ 220	+ 80	+ 100	- 150
	3	16	**2 290**	- 20	+ 40	+ 110	+ 90	+ 220	+ 80	+ 110	- 170

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 690**	- 40	+ 90	N/A	+ 210	+ 450	+ 170	+ 280	- 400
	3	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 380	+ 140	+ 200	- 220
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 510**	- 30	+ 70	+ 160	+ 140	+ 360	+ 130	+ 170	- 200
	3	16	**2 770**	- 30	+ 80	+ 140	+ 160	+ 390	+ 120	+ 190	- 250

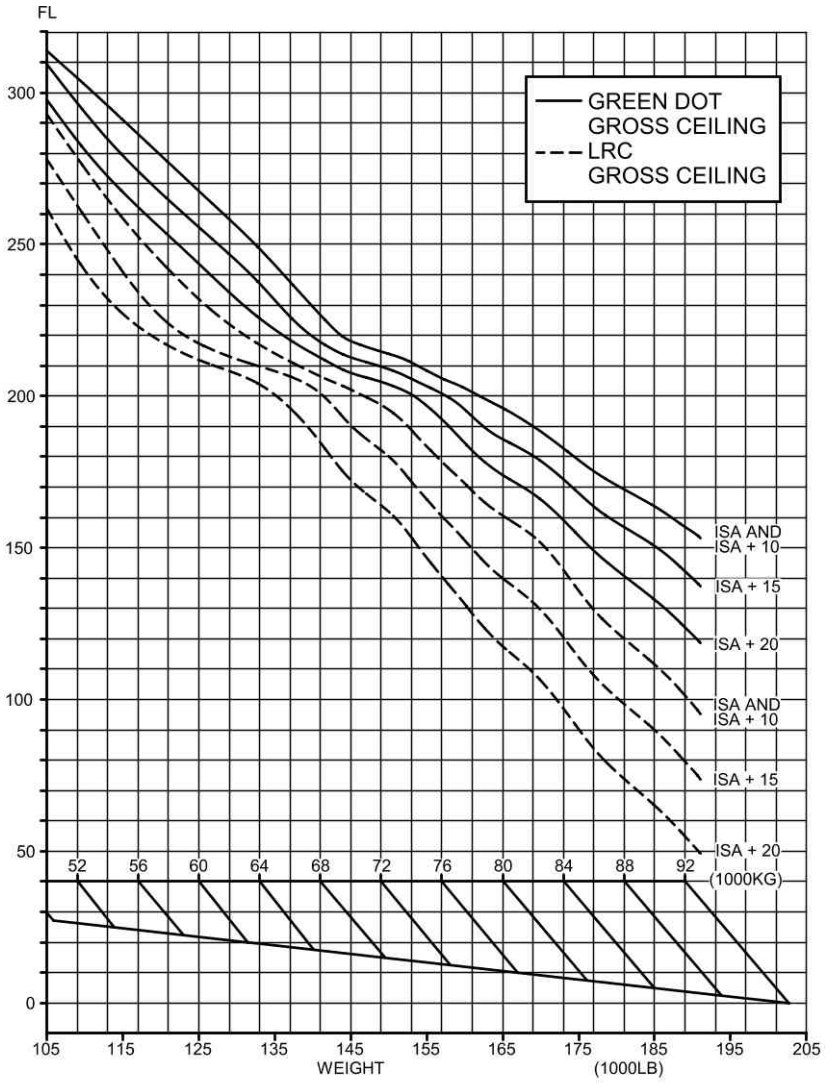
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**5 030**	- 50	+ 90	N/A	+ 230	+ 580	+ 190	+ 910	- 860
	3	10	**3 790**	- 40	+ 80	+ 160	+ 180	+ 530	+ 150	+ 720	- 600
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 630**	- 30	+ 80	+ 150	+ 170	+ 520	+ 150	+ 650	- 540
	3	16	**3 940**	- 40	+ 80	+ 150	+ 180	+ 530	+ 150	+ 720	- 620

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-1 300 ft	-1 400 ft	-1 400 ft
	TOTAL ANTI ICE ON	-2 800 ft	-2 800 ft	-2 800 ft	-3 000 ft
GREEN DOT	ENGINE ANTI ICE ON	-1 000 ft	-1 000 ft	-1 100 ft	-1 200 ft
	TOTAL ANTI ICE ON	-2 100 ft	-2 100 ft	-2 300 ft	-2 500 ft

Note: For weights 85 000 kg or 187 400 lb, one engine ceilings at Long Range speed may be overestimated by FMS Legacy. In this case, ceiling values provided in the above graph should be retained.

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL(1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50				174 32 198 .9 31700	228 42 200 1.1 31800	262 47 202 1.3 31900	288 52 204 1.3 31900
54			156 29 202 .9 30100	222 41 204 1.2 30200	258 47 206 1.4 30300	285 52 208 1.5 30300	308 55 210 1.5 30400
58		152 29 206 .9 28200	231 43 208 1.3 28500	269 50 210 1.5 28600	298 54 212 1.7 28600	320 58 214 1.7 28700	339 61 216 1.8 28700
62		236 45 212 1.5 26400	279 52 214 1.7 26600	309 57 216 1.8 26600	333 61 218 1.9 26700	352 64 220 2.0 26700	369 67 222 2.1 26800
66	155 30 214 1.1 24200	281 53 218 1.8 24600	314 59 220 2.0 24600	339 63 222 2.1 24700	360 67 224 2.2 24700	378 69 226 2.3 24800	393 71 228 2.3 24800
70	231 45 220 1.7 22600	311 59 224 2.1 22800	335 63 226 2.2 22800	357 67 228 2.3 22900	376 70 230 2.4 22900	392 72 232 2.5 22900	406 74 234 2.5 23000
74	214 41 226 1.6 21300	278 53 230 2.0 21400	301 56 232 2.1 21400	321 60 234 2.2 21500	339 62 236 2.2 21500	354 65 238 2.3 21500	
78	212 40 232 1.6 20500	264 49 236 1.9 20600	283 52 238 2.0 20600	301 55 240 2.1 20600	316 57 242 2.2 20600	330 60 244 2.2 20600	
82	242 46 238 1.9 19600	282 52 242 2.1 19700	298 55 244 2.2 19700	313 57 246 2.3 19700	326 59 248 2.3 19800		
86	278 52 244 2.3 18400	317 58 248 2.5 18400	332 61 250 2.6 18500	346 63 252 2.6 18500	359 65 254 2.7 18500		
90	300 56 250 2.6 17100	335 61 254 2.7 17200	349 64 256 2.8 17200	363 66 258 2.9 17200			
94	317 59 256 2.8 15900	350 64 260 3.0 15900	363 66 262 3.0 16000	375 67 264 3.1 16000			

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 15 %	+ 12 %	+ 18 %	- 200 FT
TOTAL ANTI ICE ON	+ 20 %	+ 24 %	+ 33 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.181 .442 1972 244	1.250 .480 1915 241	1.319 .507 1856 236	1.369 .530 1874 237	1.417 .549 1870 236	1.472 .571 1875 236
54	1.199 .454 2093 251	1.281 .494 2047 249	1.363 .529 2029 246	1.411 .548 2028 246	1.464 .569 2032 245	1.520 .588 2034 243
58	1.223 .466 2224 258	1.310 .506 2174 255	1.402 .546 2185 255	1.454 .567 2190 254	1.510 .587 2196 253	1.554 .591 2138 244
62	1.253 .484 2387 268	1.344 .521 2330 263	1.441 .562 2343 262	1.497 .583 2354 262	1.536 .585 2277 252	1.568 .551 2121 227
66	1.278 .495 2519 274	1.380 .538 2499 272	1.480 .578 2504 270	1.534 .595 2503 267	1.548 .548 2252 235	
70	1.303 .506 2651 280	1.412 .552 2651 278	1.517 .591 2667 277	1.547 .578 2519 260		
74	1.327 .515 2785 286	1.446 .567 2818 286	1.549 .600 2811 281	1.562 .528 2482 236		
78	1.359 .531 2968 295	1.478 .579 2979 293	1.557 .577 2795 270			
82	1.385 .543 3124 301	1.510 .592 3146 299	1.574 .523 2758 243			
86	1.412 .554 3282 308	1.519 .580 3163 293				
90	1.440 .567 3449 315	1.529 .559 3158 282				
94	1.456 .569 3540 316	1.549 .512 3139 258				
ENGINE ANTI ICE ON △FUEL = + 2 %				TOTAL ANTI ICE ON △FUEL = + 4 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1510 0.46	1317 0.44	1180 0.42	1131 0.41	1083 0.41	1061 0.41	9	7	6
300	2259 1.06	2008 1.03	1826 0.59	1762 0.58	1699 0.57	1670 0.58	15	14	13
400	3004 1.27	2694 1.22	2468 1.17	2388 1.15	2312 1.14	2276 1.15	21	20	20
500	3745 1.47	3377 1.41	3106 1.34	3010 1.32	2921 1.31	2877 1.32	27	27	27
600	4481 2.08	4055 2.00	3739 1.52	3628 1.49	3527 1.48	3475 1.49	34	34	34
700	5212 2.28	4729 2.19	4369 2.10	4241 2.07	4129 2.04	4069 2.05	40	40	41
800	5938 2.49	5400 2.39	4994 2.28	4851 2.24	4727 2.21	4659 2.22	46	47	48
900	6659 3.10	6066 2.58	5615 2.46	5456 2.41	5320 2.38	5247 2.38	52	53	54
1000	7376 3.31	6728 3.17	6232 3.04	6058 2.59	5907 2.55	5831 2.55	58	60	61
1100	8088 3.52	7387 3.37	6845 3.22	6656 3.16	6490 3.12	6413 3.11	63	66	68
1200	8798 4.13	8042 3.56	7454 3.41	7250 3.34	7070 3.29	6991 3.28	69	73	74
1300	9506 4.34	8693 4.16	8059 3.59	7840 3.52	7645 3.46	7566 3.44	75	79	81
1400	10209 4.55	9340 4.36	8661 4.17	8427 4.10	8217 4.03	8137 4.00	81	86	87

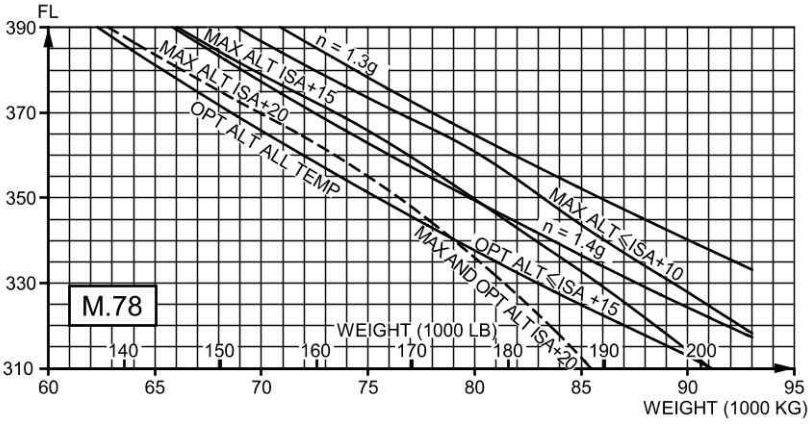
ENGINE ANTI ICE ON
△FUEL = + 2 %

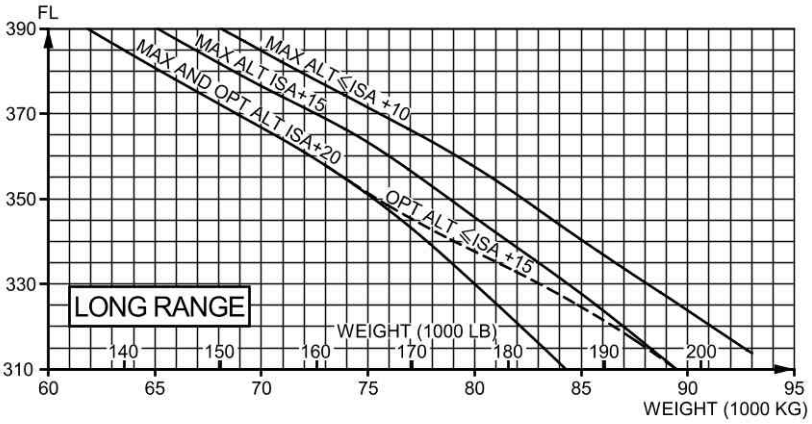
TOTAL ANTI ICE ON
△FUEL = + 4 %

FLIP23 A321-131 IAE V2530-A5 3610 03301.001011 0250300 .7801 .000100 140 0300350 60 0 100100 40100 18590 CL-N0-04-07-150

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES





CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 500 ft Opt ALT :- 300 ft	Max ALT : -1 100 ft Opt ALT : - 300 ft
ISA +15	Max ALT : - 700 ft Opt ALT : - 300 ft	Max ALT : -1 500 ft Opt ALT : - 600 ft
ISA +20	Max ALT : -1 000 ft Opt ALT : -1 000 ft	Max ALT : -2 300 ft Opt ALT : -2 300 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 – DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 65000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	1037 0.36	978 0.36	926 0.36	880 0.36	842 0.36	816 0.36	1	2	4
400	2281 1.02	2158 1.02	2049 1.02	1956 1.03	1885 1.03	1854 1.03	7	10	20
600	3518 1.27	3329 1.28	3164 1.29	3023 1.29	2918 1.30	2875 1.30	13	18	33
800	4747 1.53	4494 1.54	4271 1.55	4081 1.56	3939 1.56	3882 1.56	19	25	45
1000	5970 2.19	5650 2.20	5370 2.22	5131 2.23	4951 2.23	4874 2.23	25	33	57
1200	7185 2.45	6799 2.47	6461 2.48	6171 2.49	5952 2.50	5852 2.50	31	40	67
1400	8393 3.11	7941 3.13	7544 3.14	7204 3.16	6944 3.17	6816 3.17	36	47	77
1600	9596 3.37	9076 3.39	8620 3.41	8228 3.43	7925 3.44	7768 3.44	41	54	86
1800	10792 4.03	10205 4.05	9689 4.07	9244 4.09	8898 4.10	8707 4.10	46	60	94
2000	11983 4.29	11327 4.31	10751 4.34	10254 4.36	9865 4.37	9640 4.37	51	66	102
2200	13167 4.55	12442 4.58	11806 5.00	11256 5.03	10825 5.04	10566 5.04	56	73	110
2400	14345 5.21	13551 5.24	12855 5.26	12251 5.29	11776 5.31	11482 5.31	61	79	117
2600	15518 5.47	14654 5.50	13897 5.53	13239 5.56	12720 5.58	12388 5.58	65	85	125
2800	16685 6.13	15750 6.16	14932 6.19	14220 6.23	13657 6.24	13286 6.24	68	90	131
3000	17851 6.39	16841 6.42	15961 6.46	15195 6.49	14586 6.51	14175 6.51	72	96	138

ECON AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.6 %	△FUEL = + 2 %	△FUEL = + 5 %

FLIP22B A321-131 IAE V2530-A5&3610 03301.300211 0250300 .7800 .000200 140 0300350 65 0 100100 40100 18590 CL-N0-CL-004-009-150

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 50 kg/min in the FMGC.
  or
- CI_{LRC} = 70 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	60				80				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.7	173	100	IDLE					241
370	15.9	166	95	IDLE	18.0	186	108	IDLE	252
350	15.2	159	90	IDLE	17.3	179	103	IDLE	264
330	14.6	153	85	IDLE	16.6	173	98	IDLE	277
310	14.0	148	81	IDLE	16.0	167	93	IDLE	289
290	13.5	143	76	IDLE	15.3	161	88	IDLE	300
270	12.8	137	71	IDLE	14.5	154	81	IDLE	300
250	12.1	131	66	IDLE	13.6	146	75	IDLE	300
240	11.7	127	63	IDLE	13.2	143	72	IDLE	300
220	11.0	121	58	IDLE	12.3	135	66	IDLE	300
200	10.2	114	53	IDLE	11.5	127	60	IDLE	300
180	9.5	108	48	IDLE	10.5	119	54	IDLE	300
160	8.7	100	43	IDLE	9.6	110	48	IDLE	300
140	7.9	93	39	IDLE	8.7	101	42	IDLE	300
120	7.1	85	34	IDLE	7.7	92	37	IDLE	300
100	6.3	76	29	IDLE	6.7	81	31	IDLE	300
50	2.4	30	10	IDLE	2.5	32	11	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	ECON AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 1 min	+ 3 min	+ 0.2 %
FUEL	– 2 %	+ 17 %	+ 90 %	+ 0.7 %
DISTANCE	–	+ 4 %	+ 20 %	+ 0.4 %

10B-08FA321-131IAEV2530-A523100000C5KG330001859000-1-350.015.0.00003.780300.000250.0000 FCOM-N0-03-05-30-002-150

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 120 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 100 KG (4MIN)

REF. LDG WT AT DEST. = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	601 0.12						2		
60	775 0.16						4		
80	950 0.20	898 0.19					5		
100	1124 0.23	1056 0.23	1035 0.22				6	6	
120	1299 0.27	1213 0.26	1172 0.26	1172 0.25			7	7	
140	1474 0.31	1371 0.30	1310 0.29	1294 0.28			8	8	
160	1649 0.35	1529 0.33	1447 0.32	1416 0.31	1423 0.31		9	8	10
180	1825 0.39	1687 0.37	1585 0.35	1539 0.35	1536 0.34	1547 0.33	10	9	12
200	2000 0.43	1845 0.40	1723 0.38	1662 0.38	1650 0.36	1654 0.36	11	10	13
220	2176 0.46	2003 0.44	1860 0.42	1784 0.41	1763 0.39	1761 0.39	12	10	14
240	2352 0.50	2161 0.47	1998 0.45	1907 0.44	1877 0.42	1869 0.41	13	11	15
260	2529 0.54	2320 0.50	2136 0.48	2030 0.47	1991 0.45	1976 0.44	15	12	16
280	2705 0.58	2479 0.54	2274 0.51	2153 0.50	2105 0.48	2084 0.47	16	13	17
300	2882 1.02	2638 0.57	2413 0.54	2277 0.53	2220 0.51	2192 0.50	17	13	18
320	3059 1.05	2797 1.01	2551 0.58	2400 0.57	2334 0.54	2300 0.53	18	14	20
340	3236 1.09	2956 1.04	2689 1.01	2524 1.00	2449 0.57	2408 0.55	19	15	21
360	3414 1.13	3115 1.07	2828 1.04	2647 1.03	2563 1.00	2516 0.58	20	16	22
380	3591 1.17	3275 1.11	2966 1.07	2771 1.06	2678 1.03	2625 1.01	21	16	23
400	3769 1.21	3435 1.14	3105 1.10	2895 1.09	2793 1.06	2733 1.04	22	17	24
420	3947 1.24	3594 1.18	3243 1.14	3019 1.12	2908 1.09	2842 1.06	23	18	25
440	4125 1.28	3754 1.21	3382 1.17	3143 1.15	3023 1.12	2951 1.09	25	19	26
460	4304 1.32	3915 1.24	3521 1.20	3267 1.18	3138 1.15	3060 1.12	26	20	27
480	4482 1.35	4075 1.28	3660 1.23	3392 1.21	3253 1.18	3169 1.15	27	20	28
500	4661 1.39	4235 1.31	3799 1.26	3516 1.25	3369 1.21	3278 1.18	28	21	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 4 %	△FUEL = + 6 %

CL-N0-04-13-155

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 140 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

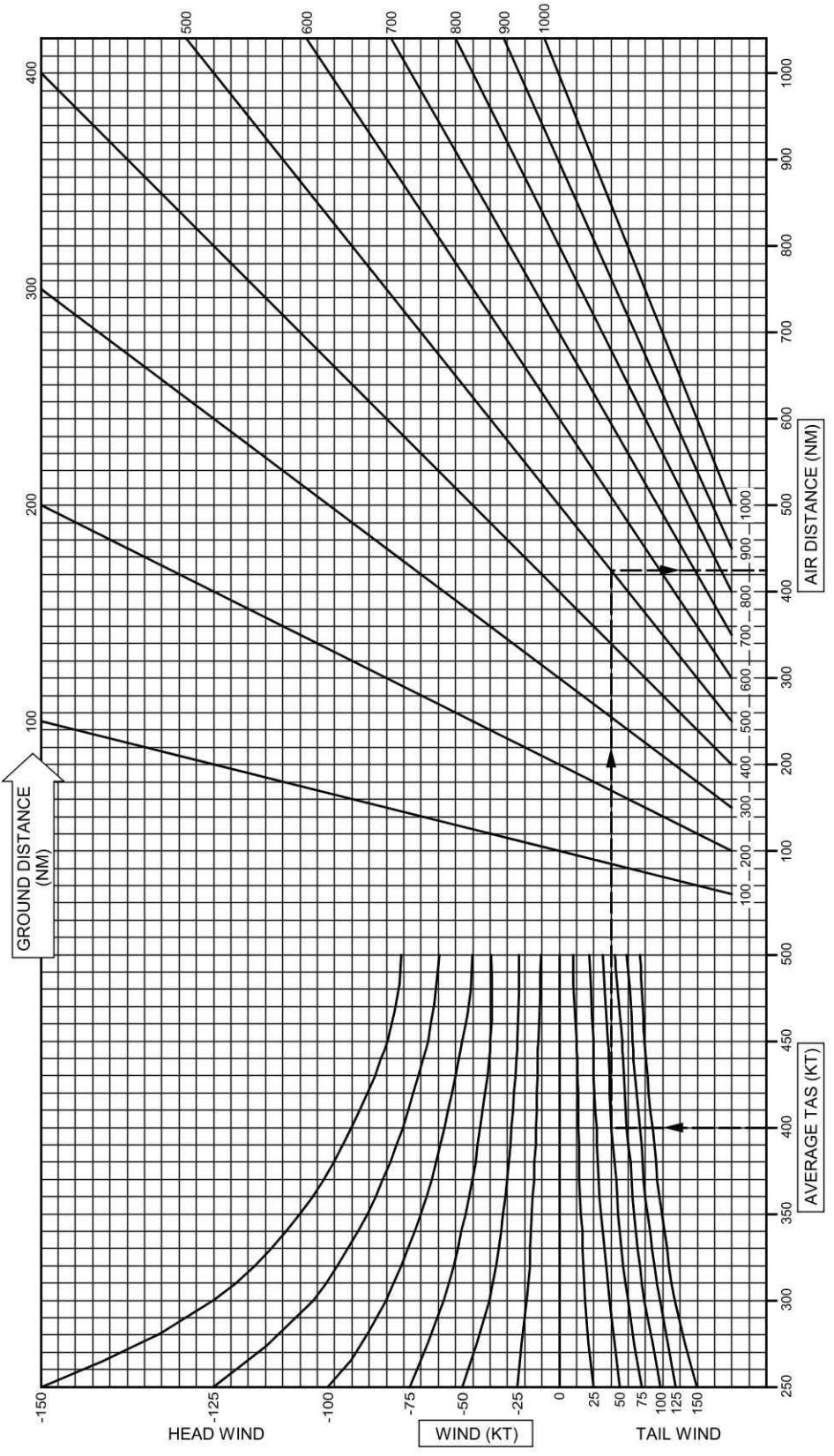
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	65	70	75	80	85	90	95
40	337 0.15	339 0.15	342 0.15	347 0.15	353 0.15	361 0.15	370 0.15
60	515 0.18	523 0.18	531 0.18	540 0.18	551 0.18	561 0.18	571 0.18
80	693 0.22	706 0.22	719 0.21	733 0.21	748 0.21	761 0.21	773 0.21
100	871 0.26	890 0.25	908 0.25	926 0.24	945 0.24	960 0.24	975 0.24
120	1048 0.30	1073 0.29	1096 0.28	1119 0.28	1141 0.27	1160 0.27	1176 0.27
140	1226 0.33	1256 0.32	1284 0.31	1312 0.31	1338 0.30	1359 0.30	1378 0.30
160	1403 0.37	1438 0.36	1472 0.35	1504 0.34	1534 0.33	1559 0.33	1580 0.33
180	1580 0.41	1621 0.39	1659 0.38	1696 0.37	1731 0.36	1758 0.36	1782 0.36
200	1757 0.45	1803 0.43	1846 0.42	1888 0.41	1927 0.39	1957 0.39	1984 0.39
220	1933 0.48	1985 0.46	2034 0.45	2080 0.44	2123 0.43	2156 0.42	2185 0.42
240	2110 0.52	2167 0.50	2221 0.48	2271 0.47	2319 0.46	2355 0.45	2387 0.45
260	2286 0.56	2349 0.53	2407 0.52	2463 0.51	2515 0.49	2554 0.48	2589 0.48
280	2462 1.00	2530 0.57	2594 0.55	2654 0.54	2710 0.52	2753 0.51	2791 0.51
300	2637 1.04	2711 1.00	2780 0.58	2845 0.57	2906 0.55	2952 0.54	2993 0.54
320	2813 1.07	2892 1.04	2967 1.02	3036 1.00	3101 0.59	3150 0.57	3195 0.57
340	2988 1.11	3073 1.07	3153 1.05	3227 1.04	3296 1.02	3349 1.00	3397 1.00
360	3164 1.15	3254 1.11	3339 1.09	3417 1.07	3491 1.05	3547 1.03	3599 1.03
380	3339 1.19	3434 1.15	3524 1.12	3608 1.10	3686 1.08	3745 1.05	3800 1.05
400	3513 1.23	3615 1.18	3710 1.15	3798 1.14	3881 1.12	3943 1.08	4001 1.08
420	3688 1.26	3795 1.22	3895 1.19	3988 1.17	4076 1.15	4141 1.11	4202 1.11
440	3862 1.30	3975 1.25	4080 1.22	4177 1.20	4270 1.18	4339 1.14	4402 1.14
460	4037 1.34	4154 1.29	4265 1.26	4367 1.24	4465 1.22	4537 1.17	4603 1.17
480	4211 1.38	4334 1.33	4450 1.29	4557 1.27	4659 1.25	4735 1.20	4803 1.20
500	4384 1.42	4513 1.36	4635 1.33	4746 1.30	4853 1.28	4932 1.23	5003 1.23
520	4558 1.46	4692 1.40	4819 1.36	4935 1.34	5047 1.32	5130 1.26	5203 1.26
540	4732 1.49	4871 1.43	5003 1.40	5124 1.37	5241 1.35	5327 1.29	5403 1.29

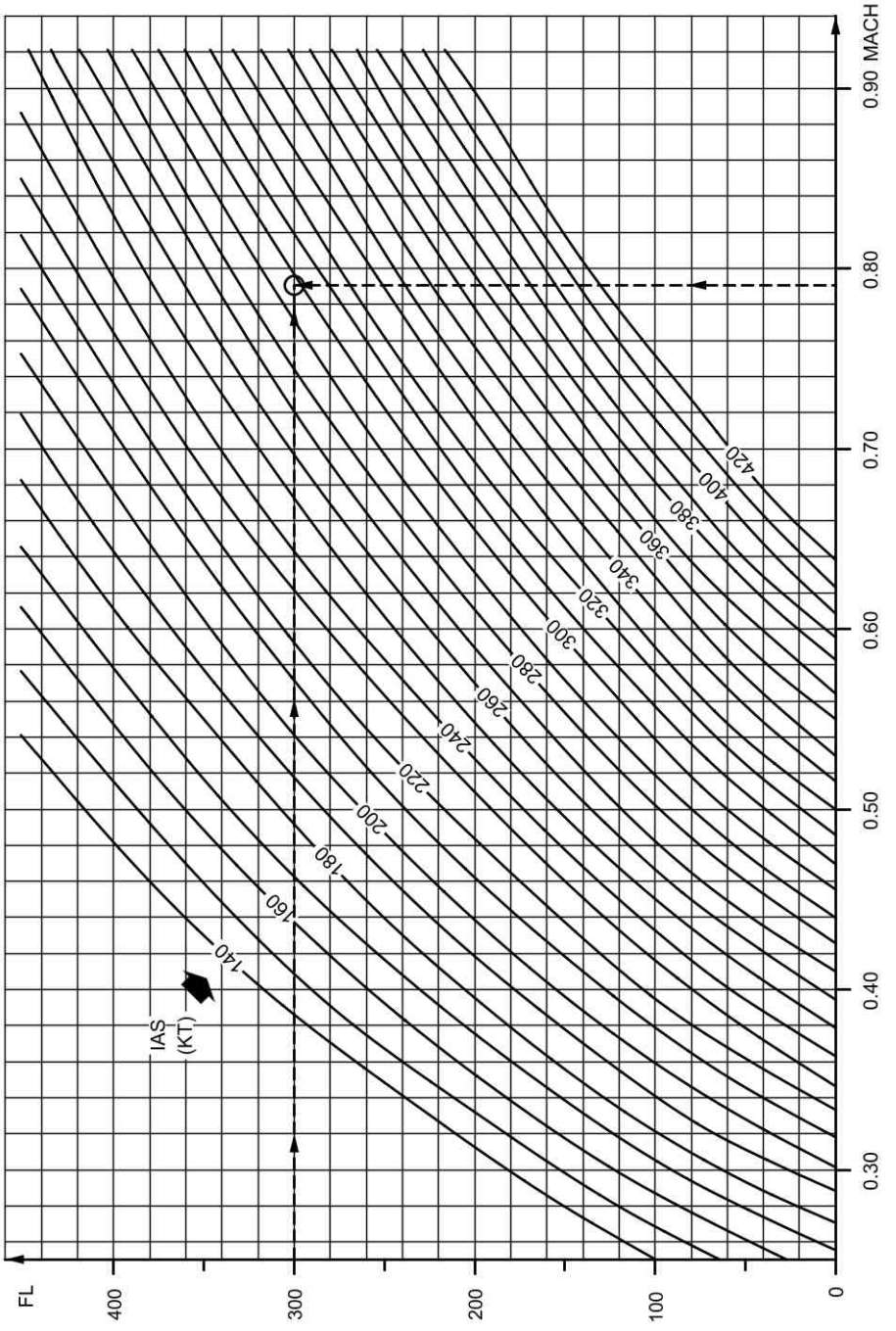
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = − 2 %	△FUEL = + 3 %	△FUEL = + 5 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

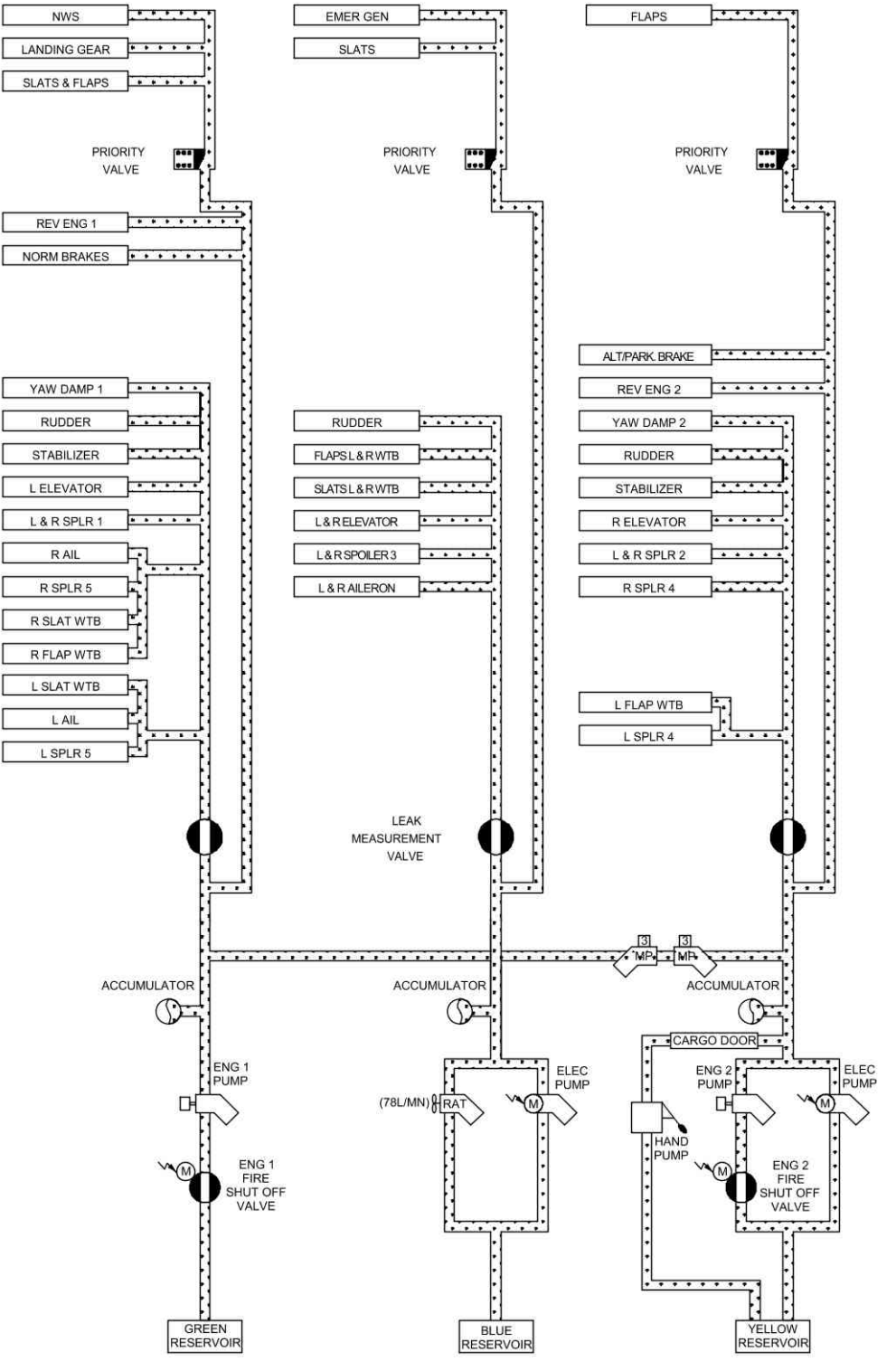
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)										
		54	58	62	66	70	74	78	82	86	90	94
		N1 %										
390	0.76	79.4	80.6	-	-	-	-	-	-	-	-	-
370	0.76	77.9	78.9	80.0	81.2	-	-	-	-	-	-	-
350	0.76	77.2	77.9	78.8	79.7	80.7	-	-	-	-	-	-
330	0.76	76.9	77.6	78.2	79.0	79.8	80.7	81.6	-	-	-	-
310	0.76	76.7	77.3	77.9	78.5	79.2	79.9	80.6	81.5	82.4	-	-
290	0.76	76.7	77.2	77.7	78.2	78.8	79.4	80.0	80.6	81.4	82.1	83.0
270	300	76.2	76.6	77.0	77.5	78.0	78.5	79.1	79.6	80.3	80.9	81.6
250	300	75.0	75.4	75.8	76.2	76.7	77.1	77.7	78.2	78.9	79.5	80.2
200	300	72.2	72.5	72.9	73.3	73.7	74.2	74.7	75.2	75.8	76.4	77.0
150	270	65.5	65.9	66.5	67.0	67.7	68.4	69.2	70.3	71.0	71.8	72.6
100	270	62.5	62.9	63.5	64.0	64.6	65.3	66.0	66.8	67.6	68.4	69.2
50	270	59.1	59.5	60.0	60.5	61.1	61.8	62.6	63.4	64.2	65.0	65.7

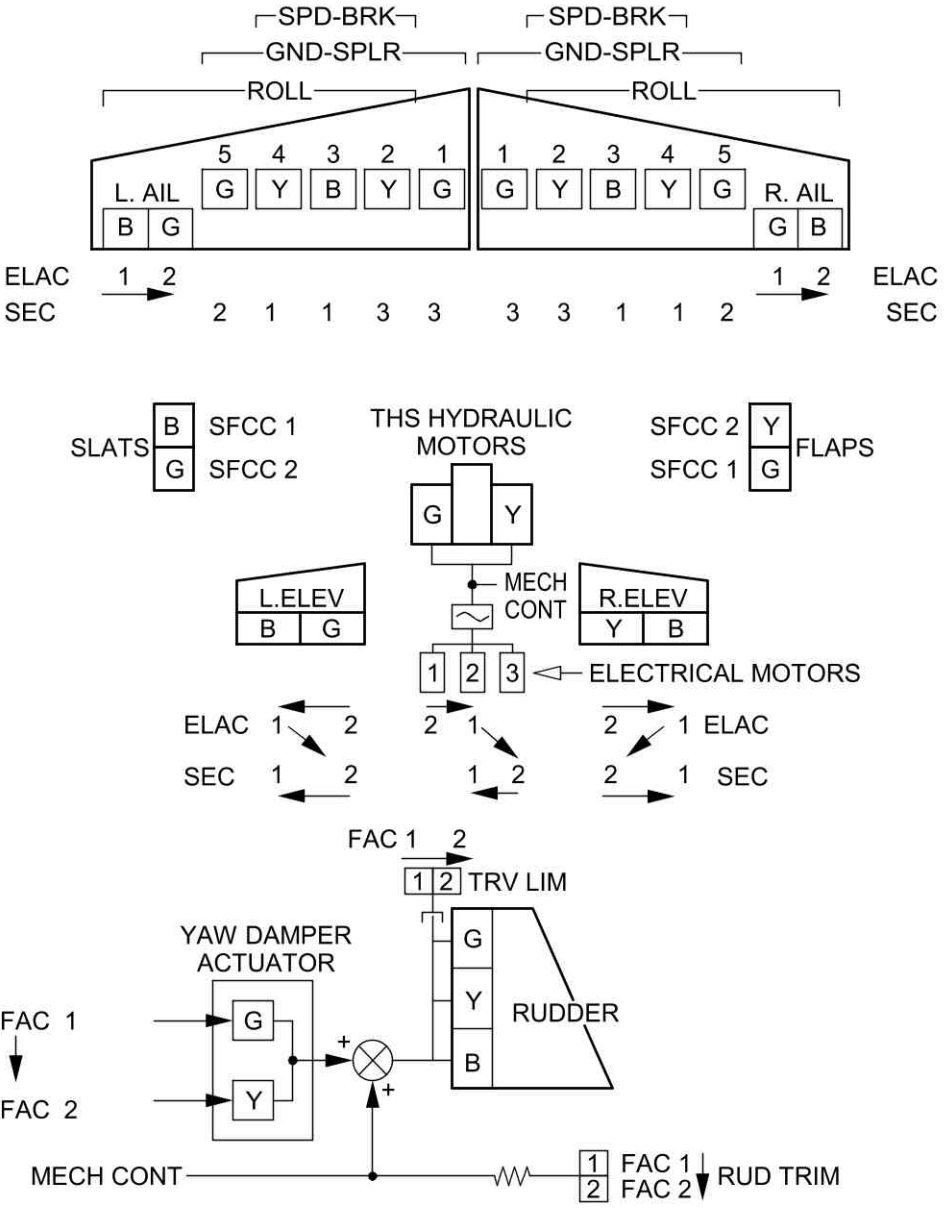
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-28 No Localizer or Glide Slope Capture in Approach

No Localizer or Glide Slope Capture in Approach.....28.00
No Localizer or Glide Slope Capture in Approach.....28.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTD**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTD**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB28 Issue 1.0
NO LOCALIZER OR GLIDE SLOPE CAPTURE IN APPROACH

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 184.
Several Operators experienced the following event: LOC* (G/S*) capture mode did not engage when intercepting the localizer (glide slope) during an ILS approach.
This OEB provides an explanation of the above-mentioned event, as well as the operational recommendations that the flight crew should apply, in order to intercept the ILS using LOC and G/S modes.

Applicable to: Aircraft with Rockwell Collins Multi-Mode Receiver (MMR), P/N 822-1152-121 (MOD 26999 or MOD 30631)

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
E	OEBPROC-28		**No Localizer or Glide Slope Capture in Approach**	00013498.0001001	03 AUG 12
	Criteria: 34-1162 **Applicable to: B-HTD**				
	OEBPROC-28		**No Localizer or Glide Slope Capture in Approach**	00013499.0001001	03 AUG 12
	Criteria: (P5168 or 34-1162 or 34-1208) **Applicable to: B-HTD**				

NO LOCALIZER OR GLIDE SLOPE CAPTURE IN APPROACH

ECAM ENTRY

None

PROCEDURE

In accordance with the FCOM Standard Operating Procedures (*Refer to FCOM/PRO-NOR-SOP-18 ILS Approach Pattern*), the flight crew should closely monitor the localizer and glide slope capture, for every ILS approach.

- **If LOC* mode does not engage when expected, the flight crew should:**

  Perform the ILS interception using the LOC raw data deviations. The FD and AP can be used in selected modes (HDG-V/S modes, or preferably TRK-FPA modes) for this purpose.

  Consider changing the Master FMGC:

  - **If the AP is engaged:**

    Change the AP in command
    (If AP1+2 are engaged, change to AP2, by pressing the AP1 pb on the FCU to disengage AP1)

  - **If the AP is disengaged, and the FDs are engaged:**

    Turn off FD1

  Then, attempt to reengage the LOC and G/S modes, by pressing the APPR pb.

LOC* (G/S*) mode should engage as expected, and the ILS can then be flown in LOC and G/S modes. However, the flight crew should disregard the approach capability on the FMA, and perform only a CAT I approach with a manual landing.

Note: *If it is still not possible to intercept the ILS after changing the Master FMGC, the flight crew must perform an ILS approach using raw data. The AP/FD can be used in selected modes (HDG/VS, or preferably TRK/FPA). The flight crew should disarm the APPR (LOC) mode(s) by setting the APPR (LOC) pb to OFF on the FCU, and then perform a CAT I approach with a manual landing.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTD**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTD**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTD**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTD**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTD**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HTE

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HTE**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HTE**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HTE**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HTE**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HTE**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HTE**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HTE**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTE** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	1024	HDA 0102	B-HTE	321-231

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	K2113		30 AUG 10	FUSELAGE - REAR FUSELAGE SECTION 16A - DEFINE A321 BASIC STRUCTURE
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P5769		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF NEW RAIN REPELLENT
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	32-1361 00		30 MAY 12	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU L4.9B (EM2) FROM STD BSCU STD 10 OR 10.1 (PRE EM2).
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P3341		30 AUG 10	LANDING GEAR - WHEELS AND BRAKES - INSTALL MESSIER GOODRICH WHEELS AND BRAKES ON A321
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0070		30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

[redacted] LOSS OF BRAKING [redacted]..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
[redacted] EGPWS ALERTS [redacted]..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
[redacted] TCAS WARNINGS [redacted]..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[7] [redacted] ENG DUAL FAILURE - FUEL REMAINING [redacted]..... 70.01
[8] [redacted] ENG DUAL FAILURE - NO FUEL REMAINING [redacted]..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[9] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
[redacted] Ditching [redacted]..... 80.03
[redacted] Forced Landing [redacted]..... 80.04
[redacted] EMER Descent [redacted]..... 80.05
OVERWEIGHT LANDING..... 80.06
[redacted] Stall Recovery [redacted]..... 80.07
[redacted] Stall Warning at Lift-Off [redacted]..... 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	Add of HF 1
			The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG RELIGHT (in flight)	70.03	1	Addition of a note in order to standardize the information throughout the QRH.

Localization Title	Page	ID	Reason
ABN-70 ENG TAILPIPE FIRE	70.05	2	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
	AFT CRG ISOL VALVE	Norm	Inop	Inop
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
HYD	FIRE VALVES	Norm	Norm	Norm
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK USABLE BY GRAVITY: 2 t (4 400 lb) UNUSABLE
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

● **If fuel vapors:**

CAB FANS.....ON
PACK 1+2..... OFF

● **If no fuel vapors:**

CAB FANS.....OFF
ECON FLOW..... OFF

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

● **At FL 100 or MEA**

APU MASTER SW (if in ELEC EMER CONF).....ON
PACK 1+2.....OFF
MODE SEL.....MAN
MAN V/S CTL..... FULL UP
RAM AIR.....ON
APU MASTER SW.....OFF

● **If smoke persists, open CKPT window:**

MAX SPEED.....200 KT
COCKPIT DOOR.....OPEN
HEADSETS.....ON
PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

- **If smoke continues:**

PACK 1.....ON
PACK 2.....OFF

- **If smoke still continues:**

PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

- **If smoke continues:**

EMER EXIT LIGHT.....ON
BUS TIE.....OFF
GEN 2.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

- **If smoke still continues or if faulty equipment confirmed isolated:**

GEN 2.....ON
BUS TIE.....AUTO

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

● **If faulty equipment not confirmed isolated, before L/G extension:**
GEN 2..... ON
BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

● **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
ELEC EMER CONFIG..... CONSIDER

● **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

● **WHEN EMER GEN AVAIL:**
APU GEN.....OFF
GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

● **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
GEN 2.....ON
EMER ELEC GEN 1 LINE.....ON

● **WHEN A/C IS STOPPED:**
ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">215 kt</td><td rowspan="3">195 kt</td><td>190 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">190 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">215 kt</td><td>215 kt</td><td>195 kt</td><td>190 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">190 kt</td><td>190 kt</td><td>190 kt</td><td>190 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON
CTR TK L+R XFR..... OFF

- **On the lighter side:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS..... ON
  CTR TK L+R XFR.....ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- A tank is overflowing (due to pipe rupture in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each wing tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK L+R XFR..... OFF

Each engine is fed via its associated wing tank only.

WING TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each wing tank.

■ CASE 1 : IF ONE WING TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the wing tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  CTR TK L+R XFR..... ON
  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The wing tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER
CTR TK XFR (non-leaking side).....ON

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2 : IF BOTH WING TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**
  APU (if ON).....OFF
  This prevents additional fuel loss through the APU feeding line.
- **When fuel quantity in one wing tank is less than 3 t (6 600 lb):**
  CTR TK L+R XFR..... ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF

Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**

  CG location (if possible).....AFT

  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**

  FUEL IMBALANCE.....CONSIDER

  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE

- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**

  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**

  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE..... DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING..... MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL..... MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown)..... NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton..... PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION..... INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL..... FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

- **If "H" is written on the "5" key:**

  H KEY..... PRESS
  Degree marker, 0 decimal point, ENT and CLR lights come on.
  A/C HEADING..... ENTER

- **If "H" is not written on the "5" key:**

  A/C HEADING..... ENTER
  Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
  Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
  Heading will be displayed on the associated ND.
  "HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3

- **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4

- **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	F	4.0 / 70.7	4.0 / 66.4	4.0 / 61.5
2	F	7.0 / 68.9	7.0 / 64.6	7.0 / 59.9
1 + F	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
1	S	7.5 / 65.5	7.5 / 61.4	7.5 / 56.5
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5

WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	270 kt	8.5 / CLB	9.0 / CLB	10.0 / CLB
FL 50 - FL 100		8.0 / CLB	8.0 / CLB	9.0 / CLB
FL 100 - FL 150		7.0 / CLB	7.0 / CLB	8.0 / CLB
FL 150 - FL 200		6.0 / CLB	6.0 / CLB	6.5 / CLB
FL 200 - FL 250	300 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
FL 250 - FL 280		3.5 / CLB	3.0 / CLB	3.0 / CLB
Above FL 280	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Above FL 280	M 0.76	-1.0 / IDLE	-1.5 / IDLE	-2.0 / IDLE
FL 280 - FL 200	300 kt	-0.5 / IDLE	-1.5 / IDLE	-2.5 / IDLE
FL 200 - FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-1.5 / IDLE
Below FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-2.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.0 / IDLE	2.0 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.0 / 63.4	5.0 / 59.4	5.0 / 54.6
1	S	7.5 / 65.6	7.5 / 61.4	7.5 / 56.6
1 + F (1)	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
2	F	7.0 / 68.5	7.0 / 64.7	7.0 / 59.9
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	4.0 / 74.8	4.0 / 71.0	4.0 / 65.8

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	2.0 / 60.0	2.0 / 56.0	1.5 / 51.6

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 60 000 kg/132 000 lb	*-2.5*
70 000 kg/154 000 lb	*-1.5*
80 000 kg/176 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.4 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
94	*251*	*261*	*271*
92	*248*	*258*	*268*
88	*242*	*252*	*262*
86	*239*	*249*	*259*
84	*236*	*246*	*256*
82	*233*	*243*	*253*
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 and L/G DOWN) will be approximately 1.1 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK.....ON

  ATC.....NOTIFY

  FIRE pushbutton (ENG and APU).....PUSH

  AGENTS (ENG and APU).....DISCH

  Engine Agent 2 is not available.

  - **If Evacuation required:**

    EVACUATION.....INITIATE

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 160 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**
L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU)..... PUSH
AGENT (ENG and APU)..... DISCH
Engine Agent 2 is not available.
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....240 KT/GREEN DOT

Initially, fly 240 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⩤ /ATC1.....USE
ATC..... NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT..... PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3; L/G DOWN), will be approximately 1.1 N/m per 1 000 ft (with no wind).*

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....160 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt.

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank.....PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard ″USE MAN PITCH TRIM″ on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever.....DOWN
    APPROACH SPEED.....ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

GND SPLR.....ARM
MAX BRK PR.....1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK.....ON
  ATC.....NOTIFY
  - **If Evacuation required :**
    EVACUATION.....INITIATE
    ELT ◁ .....CHECK EMITTING
    If not, switch on the transmitter

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

■ **If Evacuation not required :**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY

EVACUATION..... INITIATE

ELT ⋖ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

1 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

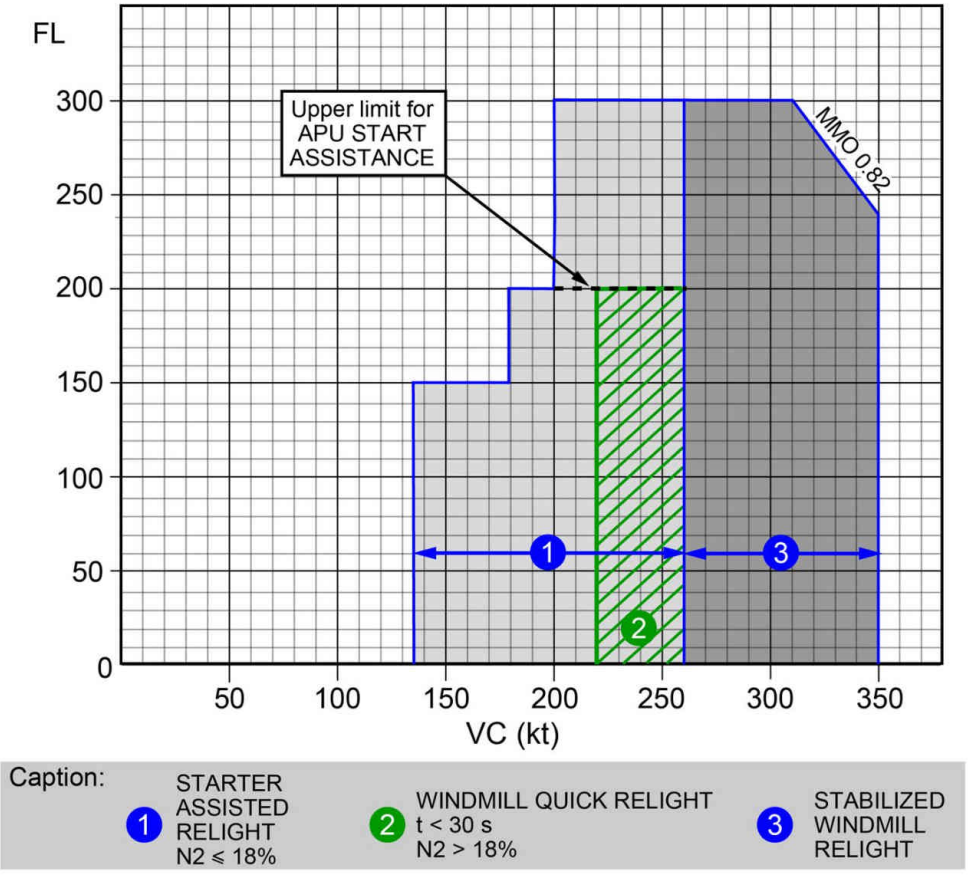
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

2

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	76	74	71	68	64	61	58	54
5	76	74	71	68	64	61	56	52
10	76	74	71	68	64	59	54	
15	76	74	71	67	61	57	52	
20	76	74	69	64	59	54		
25	76	71	66	61	56			
30	73	68	64	59	54			
35	69	65	61	57	52			
40	66	62	59	55				
45	63	60	57					
50	60	57						
55	57							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

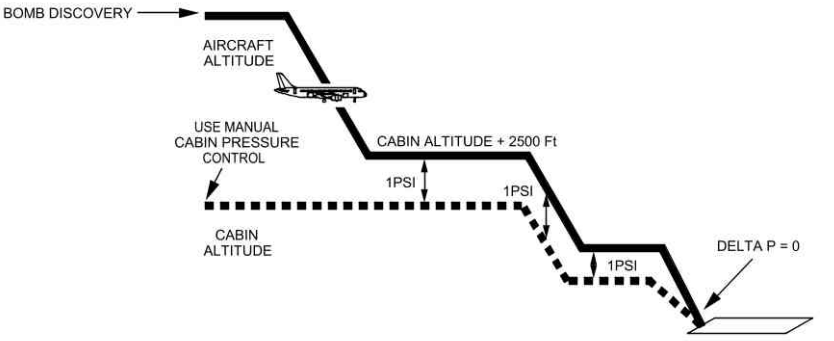
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN
  GALLEY.....OFF
  FLAPS (fuel permitting)..... AT LEAST CONF 1
  For landing, use normal configuration.
  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE
    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK
Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.
BOMB.....DO NOT OPEN
BOMB.....DO NOT CUT WIRES
BOMB.....SECURE AGAINST SLIPPING
BOMB.....AVOID SHOCKS
Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.
PASSENGERS.....LEAD AWAY FROM BOMB
Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.
Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.
Seat backs and tray tables must be in their full upright position.
Service items may need to be collected in order to secure tray tables.
PORTABLE ELECTRONIC DEVICES..... SWITCH OFF
The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

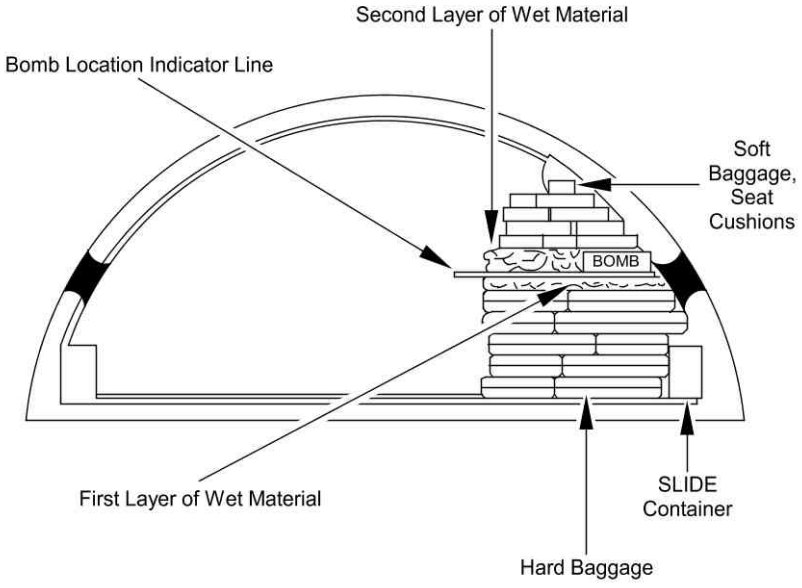
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV.....SELECT 00
BARO.....SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton.....ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH
EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS..... MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

  PARKING BRK.....ON
  ATC (VHF 1)..... NOTIFY
  FIRE pushbutton (ENG and APU).....PUSH
  AGENTS (ENG and APU).....DISCH

  - **If Evacuation required:**

    EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: At very high weights, VFE CONF1 is close to VLS clean. To select CONF1, deselect A/THR, decelerate to (or slightly below) VLS and select CONF1 when below VFE. When established at CONF1, the crew can re-engage the A/THR and use managed speed again

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	92	88	82	76	70	65	60	55
15	92	88	82	76	70	65	60	55
20	92	88	82	76	70	65	60	55
25	92	87	80	75	69	64	59	
30	92	85	79	73	68			
35	88	82	76	70	65			
40	85	79	73	68				
45	82	75	70					
50	78	72						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
ECON FLOW.....OFF

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to the QRH ABN 34 Unreliable Speed Indication / ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost, Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*

- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*

Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
  2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in wing tank	GALLEY (OFF)
	Fuel temp lower than -40 °C in wing tank	Consider descending to a lower altitude, and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G01 on 49VU, M06 on 121VU. G02 on 49VU, M07 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M06, M07, G01, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M07 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M06 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M07, G02 - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁⋘) of the FAP` in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication	FQIC	**On ground, or in flight:** - Pull the C/B of the affected channel: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) - Wait 5 s, before pushing the C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A321..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A321..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A321	1/2	1	**20 Sep 2012 : Modification of content of the element 20803157.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits:
    - AUTOLAND (HWC30 / TWC10 / XWC20)
    - MANUAL LAND - CAT II (HWC40 / TWC10 / XWC25)
    - OEI ROLLOUT (IDLE REV ONLY XWC15)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

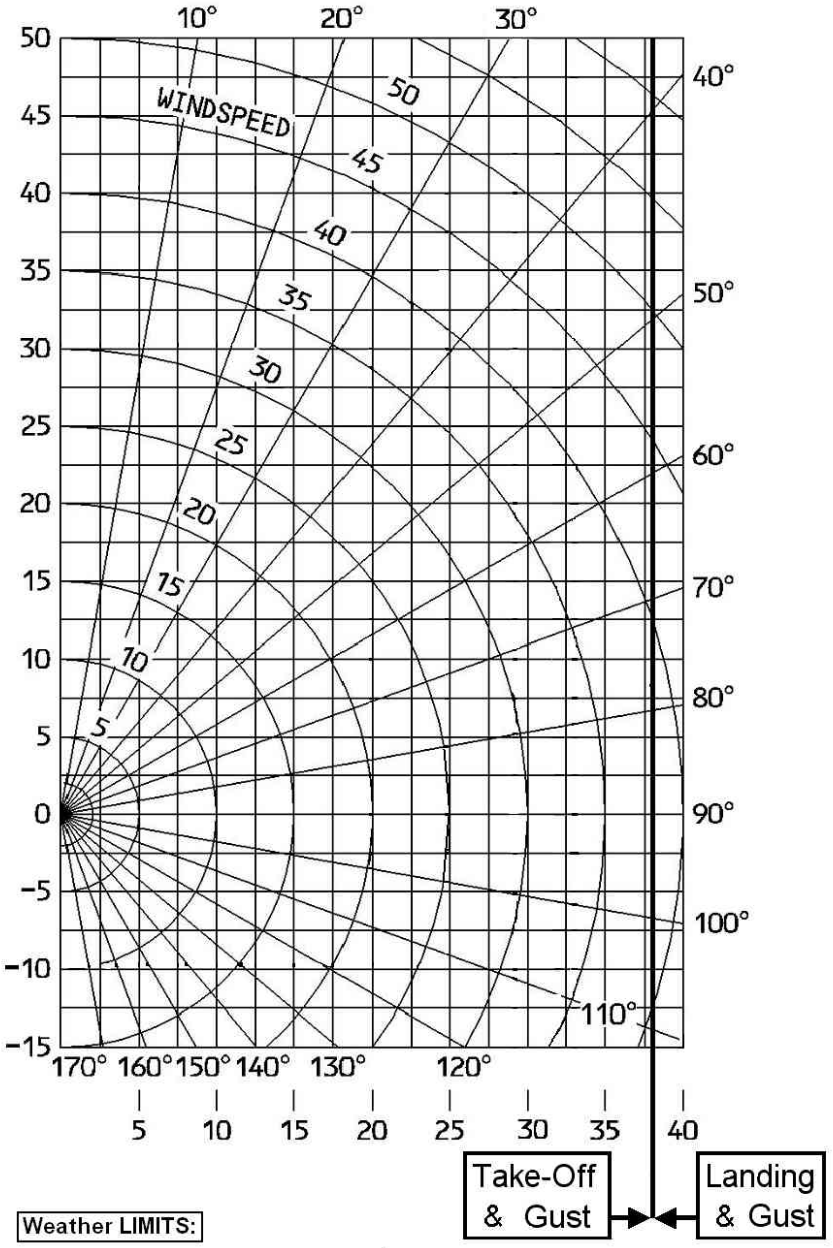
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A321



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind
15 knot x-wind limit for OEI Rollout with IDLE reverse only.

CAT II No Autoland
40 knots headwind
25 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A321

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings.....1/4
Gross Flight Path Descent at Green Dot Speed..... 2/4
Cruise at Long Range Cruise Speed..... 3/4
In Cruise Quick Check Long Range.....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes..... 1/4
In Cruise Quick Check at a Given Mach Number.....2/4
Cost Index for Long Range Cruise Speed.....2/4
Standard Descent.....3/4
Quick Determination Table of Alternate Flight Planning.....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range..... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion..... 1/2
IAS / MACH Conversion..... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)					
W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
52	130	168	188	121	116
56	135	174	194	125	121
60	140	180	200	130	125
64	144	186	206	134	129
68	149	192	212	138	133
72	153	197	218	142	137
76	157	203	224	146	141
80	161	208	230	150	144
84	165	213	236	154	148
88	169	218	242	157	151
92	173	223	248	161	155
94	175	226	251	163	157

(1) Above FL 200 add 1 kt per additional 1 000 ft.

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

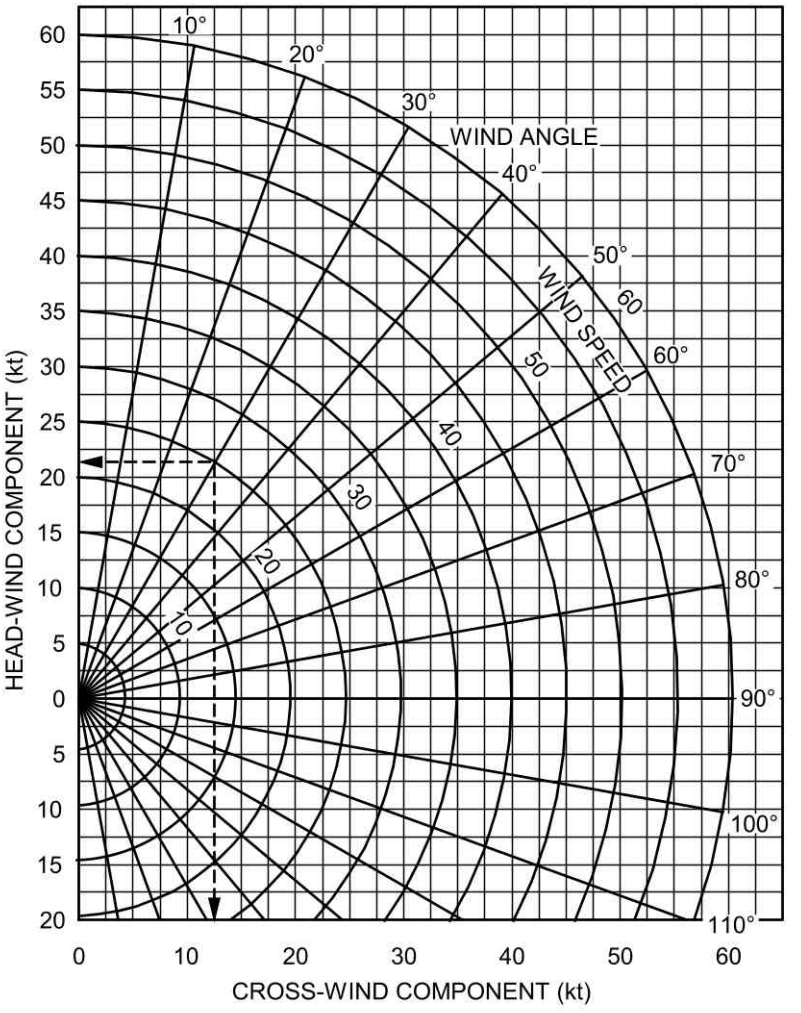
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VLS CONF FULL (kt) (=VREF)	116	119	123	127	131	135	139	143	146	150	153	157
VLS CONF3 (kt)	121	123	128	132	136	140	144	148	152	156	159	163

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 210**	- 10	+ 60	+ 80	+ 50	+ 140	+ 50	+ 30	- 20
AUTOBRAKE MED	**1 480**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 260 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 290**	- 10	+ 60	+ 80	+ 60	+ 160	+ 50	+ 30	- 30
AUTOBRAKE MED	**1 570**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 270 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 520**	- 10	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
AUTOBRAKE MED	**1 560**	- 10	+ 50	+ 110	+ 80	+ 210	+ 70	+ 60	- 20
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 650**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 690**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 40
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 420 m**
Autoland	**+ 330 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 730**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
AUTOBRAKE MED	**1 780**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
AUTOBRAKE LOW	**2 100**	- 20	+ 40	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 450 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 860**	- 10	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
AUTOBRAKE MED	**1 900**	- 10	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 120
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 90	+ 220	+ 80	+ 50	- 10

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 320 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 930**	- 10	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 130
AUTOBRAKE MED	**1 970**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 140
AUTOBRAKE LOW	**2 160**	- 20	+ 50	+ 140	+ 80	+ 230	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 430 m**
Autoland	**+ 320 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 070**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 110	- 150
AUTOBRAKE MED	**2 110**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 160
AUTOBRAKE LOW	**2 310**	- 20	+ 50	+ 140	+ 90	+ 240	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 330 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 210**	- 20	+ 70	+ 170	+ 130	+ 360	+ 120	+ 160	- 160
AUTOBRAKE MED	**2 240**	- 20	+ 70	+ 150	+ 130	+ 370	+ 110	+ 160	- 160
AUTOBRAKE LOW	**2 270**	- 20	+ 70	+ 150	+ 140	+ 370	+ 100	+ 170	- 50

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 390 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 430**	- 30	+ 80	+ 170	+ 150	+ 390	+ 130	+ 180	- 190
AUTOBRAKE MED	**2 460**	- 30	+ 80	+ 150	+ 150	+ 400	+ 120	+ 190	- 190
AUTOBRAKE LOW	**2 480**	- 30	+ 80	+ 170	+ 150	+ 390	+ 120	+ 190	- 70

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 410 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 430**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 440
AUTOBRAKE MED	**3 450**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 450
AUTOBRAKE LOW	**3 480**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 380 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 700**	- 30	+ 70	+ 160	+ 200	+ 580	+ 150	+ 850	- 490
AUTOBRAKE MED	**3 720**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 850	- 510
AUTOBRAKE LOW	**3 750**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 400 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VREF = VLS CONF FULL (kt)	116	119	123	127	131	135	139	143	146	150	153	157

+

ΔVREF
Refer to the applicable Landing Distance table

+

APPRoach CORrection	
ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP
VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)
• If APPR COR > 1/3 Headwind component: Correct the landing distance (**SPD** column) with **SPD = APPR COR** • If APPR COR = 1/3 Headwind component: No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC BUS 2 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 40
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 50
DC BUS 1+2 FAULT	FULL	0	**1 860**	- 20	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6	**2 020**	- 20	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 410**	- 10	+ 50	+ 80	+ 70	+ 170	+ 50	+ 30	- 30
	3	16	**1 490**	- 10	+ 60	+ 90	+ 70	+ 170	+ 50	+ 30	- 40
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 870**	- 10	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6 / 140kt	**2 030**	- 10	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 080**	- 10	+ 80	+ 110	+ 80	+ 210	+ 80	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 70
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 80
DC BUS 2 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 100
	3	6	**2 010**	- 20	+ 70	+ 180	+ 120	+ 280	+ 100	+ 110	- 120
DC BUS 1+2 FAULT	FULL	0	**2 010**	- 20	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6	**2 210**	- 30	+ 80	+ 180	+ 120	+ 300	+ 110	+ 140	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 670**	- 20	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 70
	3	6	**1 820**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 80	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 860**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 90
	3	16	**2 020**	- 20	+ 60	+ 140	+ 110	+ 250	+ 90	+ 80	- 110
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 020**	- 10	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 220**	- 20	+ 80	+ 170	+ 120	+ 300	+ 100	+ 140	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 300**	- 20	+ 80	+ 160	+ 130	+ 300	+ 100	+ 130	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 120
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
DC BUS 2 FAULT	FULL	0	**2 060**	- 20	+ 40	+ 130	+ 90	+ 220	+ 70	+ 110	- 160
	3	6	**2 230**	- 20	+ 40	+ 140	+ 90	+ 230	+ 80	+ 130	- 190
DC BUS 1+2 FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 240**	- 20	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 890**	- 10	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 030**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 070**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 150
	3	16	**2 220**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 170
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 070**	- 10	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6 / 140kt	**2 250**	- 10	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 310**	- 10	+ 60	+ 130	+ 100	+ 230	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
DC BUS 2 FAULT	FULL	0	**2 320**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 160	- 230
	3	6	**2 530**	- 20	+ 50	+ 150	+ 110	+ 270	+ 90	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 340**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 550**	- 20	+ 50	+ 160	+ 110	+ 270	+ 100	+ 190	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 140**	- 20	+ 40	+ 120	+ 90	+ 250	+ 70	+ 130	- 190
	3	6	**2 290**	- 20	+ 40	+ 130	+ 90	+ 250	+ 90	+ 150	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 330**	- 20	+ 40	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	16	**2 490**	- 20	+ 40	+ 120	+ 110	+ 250	+ 90	+ 150	- 240
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 340**	- 10	+ 50	+ 150	+ 100	+ 260	+ 90	+ 170	INOP
	3	6 / 140kt	**2 560**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 190	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 600**	- 10	+ 50	+ 150	+ 110	+ 270	+ 100	+ 180	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 210
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 240
DC BUS 2 FAULT	FULL	0	**2 770**	- 30	+ 90	+ 240	+ 190	+ 470	+ 170	+ 300	- 300
	3	6	**3 160**	- 40	+ 100	+ 260	+ 220	+ 540	+ 160	+ 380	- 390
DC BUS 1+2 FAULT	FULL	0	**2 810**	- 30	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6	**3 200**	- 40	+ 100	+ 270	+ 230	+ 560	+ 170	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 170	+ 440	+ 120	+ 220	- 250
	3	6	**2 770**	- 30	+ 80	+ 200	+ 180	+ 470	+ 140	+ 260	- 290
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 800**	- 30	+ 80	+ 180	+ 180	+ 450	+ 140	+ 250	- 290
	3	16	**3 060**	- 30	+ 80	+ 190	+ 190	+ 470	+ 150	+ 270	- 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 820**	- 10	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6 / 140kt	**3 210**	- 20	+ 100	+ 270	+ 230	+ 570	+ 170	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**3 260**	- 30	+ 100	+ 230	+ 220	+ 510	+ 170	+ 370	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 530
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 590
DC BUS 2 FAULT	FULL	0	**4 470**	- 30	+ 70	+ 220	+ 240	+ 710	+ 190	+ 1 550	- 990
	3	6	**4 980**	- 40	+ 80	+ 240	+ 270	+ 750	+ 200	+ 1 790	- 1 180
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**4 260**	- 30	+ 50	+ 180	+ 190	+ 730	+ 160	+ 2 020	- 1 170
	3	6	**4 570**	- 30	+ 50	+ 190	+ 210	+ 750	+ 180	+ 2 130	- 1 280
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**4 530**	- 30	+ 50	+ 180	+ 210	+ 740	+ 180	+ 2 010	- 1 220
	3	16	**4 860**	- 30	+ 50	+ 180	+ 220	+ 750	+ 190	+ 2 130	- 1 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 290**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 30
	3	6	**1 380**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 430**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
THREE SPLR FAULT	FULL	0	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 40
	3	6	**1 500**	- 10	+ 50	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
ALL SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
GND SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
SEC 1 or SEC 3 FAULT	FULL	0	**1 320**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 50	+ 100	+ 60	+ 150	+ 60	+ 40	- 30
SEC 2 FAULT	FULL	0	**1 270**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 350**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SEC 2+3 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
SEC 1+3 FAULT	FULL	0	**1 460**	- 10	+ 50	+ 110	+ 60	+ 150	+ 50	+ 40	- 50
	3	6	**1 550**	- 10	+ 50	+ 120	+ 70	+ 150	+ 60	+ 50	- 60
SEC 1+2 FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 450**	- 10	+ 50	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
RUDDER JAM	FULL	0	**1 430**	- 10	+ 60	+ 120	+ 90	+ 190	+ 60	+ 50	- 30
	3	6	**1 570**	- 10	+ 70	+ 120	+ 90	+ 200	+ 70	+ 50	- 40
SEC 1+2+3 FAULT	3	10	**1 700**	- 10	+ 50	+ 140	+ 70	+ 160	+ 70	+ 60	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 660**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
	3	6	**1 830**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 920**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 80	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 800**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 80
	3	6	**1 990**	- 20	+ 60	+ 160	+ 120	+ 270	+ 90	+ 100	- 100
THREE SPLR FAULT	FULL	0	**1 890**	- 20	+ 60	+ 170	+ 110	+ 270	+ 90	+ 100	- 90
	3	6	**2 090**	- 20	+ 70	+ 180	+ 130	+ 290	+ 100	+ 120	- 110
ALL SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
GND SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
SEC 1 or SEC 3 FAULT	FULL	0	**1 720**	- 20	+ 60	+ 140	+ 90	+ 240	+ 80	+ 80	- 70
	3	6	**1 870**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 80
SEC 2 FAULT	FULL	0	**1 620**	- 10	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 50
	3	6	**1 770**	- 20	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 70
SEC 2+3 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 100
SEC 1+3 FAULT	FULL	0	**1 990**	- 20	+ 70	+ 190	+ 120	+ 290	+ 100	+ 120	- 130
	3	6	**2 200**	- 20	+ 70	+ 210	+ 140	+ 310	+ 110	+ 150	- 160
SEC 1+2 FAULT	FULL	0	**1 810**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 90
	3	6	**1 960**	- 20	+ 60	+ 160	+ 110	+ 270	+ 100	+ 100	- 110
RUDDER JAM	FULL	0	**1 820**	- 20	+ 60	+ 140	+ 110	+ 270	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 160	+ 130	+ 290	+ 100	+ 110	- 100
SEC 1+2+3 FAULT	3	10	**2 500**	- 30	+ 80	+ 260	+ 160	+ 350	+ 140	+ 210	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 870**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 030**	- 20	+ 40	+ 110	+ 80	+ 200	+ 80	+ 100	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 110**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 020**	- 20	+ 40	+ 130	+ 80	+ 210	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 150
THREE SPLR FAULT	FULL	0	**2 120**	- 20	+ 40	+ 140	+ 90	+ 220	+ 80	+ 120	- 150
	3	6	**2 300**	- 20	+ 40	+ 150	+ 100	+ 230	+ 80	+ 130	- 170
ALL SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
GND SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
SEC 1 or SEC 3 FAULT	FULL	0	**1 940**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
	3	6	**2 080**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 830**	- 10	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 100
	3	6	**1 970**	- 20	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 110
SEC 2+3 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 130	+ 80	+ 210	+ 80	+ 110	- 130
	3	6	**2 220**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 220**	- 20	+ 40	+ 160	+ 100	+ 230	+ 80	+ 140	- 200
	3	6	**2 410**	- 20	+ 50	+ 160	+ 110	+ 240	+ 90	+ 160	- 230
SEC 1+2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 150
	3	6	**2 170**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 110	- 170
RUDDER JAM	FULL	0	**2 040**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 110	- 120
	3	6	**2 220**	- 20	+ 50	+ 130	+ 110	+ 250	+ 90	+ 130	- 150
SEC 1+2+3 FAULT	3	10	**2 690**	- 20	+ 50	+ 200	+ 120	+ 260	+ 110	+ 200	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 090**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 120	- 140
	3	6	**2 280**	- 20	+ 40	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 360**	- 20	+ 40	+ 120	+ 100	+ 240	+ 90	+ 140	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 270**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 180
	3	6	**2 470**	- 20	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 210
THREE SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 200
	3	6	**2 600**	- 20	+ 50	+ 160	+ 120	+ 270	+ 90	+ 190	- 230
ALL SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
GND SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
SEC 1 or SEC 3 FAULT	FULL	0	**2 180**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 330**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 180
SEC 2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 300**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 180
	3	6	**2 500**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 510**	- 20	+ 50	+ 170	+ 110	+ 270	+ 100	+ 200	- 260
	3	6	**2 730**	- 20	+ 50	+ 180	+ 130	+ 280	+ 100	+ 220	- 310
SEC 1+2 FAULT	FULL	0	**2 290**	- 20	+ 50	+ 140	+ 100	+ 250	+ 90	+ 150	- 210
	3	6	**2 440**	- 20	+ 50	+ 140	+ 110	+ 260	+ 90	+ 160	- 220
RUDDER JAM	FULL	0	**2 260**	- 20	+ 50	+ 130	+ 120	+ 280	+ 90	+ 150	- 170
	3	6	**2 470**	- 20	+ 60	+ 130	+ 130	+ 290	+ 90	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**3 060**	- 30	+ 60	+ 230	+ 140	+ 310	+ 120	+ 290	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 450**	- 30	+ 80	+ 160	+ 150	+ 400	+ 110	+ 190	- 170
	3	6	**2 760**	- 30	+ 80	+ 200	+ 170	+ 430	+ 150	+ 250	- 220
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 880**	- 30	+ 80	+ 180	+ 180	+ 440	+ 130	+ 260	- 240
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 690**	- 30	+ 90	+ 210	+ 170	+ 450	+ 150	+ 260	- 220
	3	6	**3 040**	- 30	+ 100	+ 240	+ 200	+ 480	+ 170	+ 340	- 280
THREE SPLR FAULT	FULL	0	**2 890**	- 30	+ 100	+ 260	+ 200	+ 480	+ 160	+ 320	- 260
	3	6	**3 250**	- 40	+ 100	+ 270	+ 230	+ 530	+ 180	+ 410	- 330
ALL SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
GND SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
SEC 1 or SEC 3 FAULT	FULL	0	**2 580**	- 30	+ 80	+ 190	+ 170	+ 430	+ 120	+ 230	- 200
	3	6	**2 810**	- 30	+ 80	+ 200	+ 180	+ 440	+ 150	+ 260	- 230
SEC 2 FAULT	FULL	0	**2 380**	- 30	+ 70	+ 170	+ 140	+ 380	+ 120	+ 180	- 160
	3	6	**2 620**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 220	- 200
SEC 2+3 FAULT	FULL	0	**2 740**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 230
	3	6	**3 110**	- 40	+ 100	+ 250	+ 210	+ 510	+ 160	+ 360	- 300
SEC 1+3 FAULT	FULL	0	**3 070**	- 40	+ 100	+ 280	+ 220	+ 520	+ 170	+ 400	- 360
	3	6	**3 470**	- 40	+ 110	+ 290	+ 260	+ 570	+ 170	+ 510	- 460
SEC 1+2 FAULT	FULL	0	**2 750**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 270
	3	6	**2 990**	- 30	+ 90	+ 220	+ 200	+ 480	+ 160	+ 310	- 310
RUDDER JAM	FULL	0	**2 550**	- 30	+ 90	+ 170	+ 180	+ 430	+ 120	+ 220	- 190
	3	6	**2 820**	- 30	+ 90	+ 190	+ 200	+ 460	+ 140	+ 270	- 240
SEC 1+2+3 FAULT	3	10	**4 000**	- 50	+ 130	+ 370	+ 310	+ 640	+ 230	+ 710	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 720**	- 30	+ 70	+ 170	+ 200	+ 590	+ 150	+ 880	- 500
	3	6	**4 150**	- 40	+ 80	+ 190	+ 220	+ 620	+ 180	+ 1 030	- 600
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**4 270**	- 40	+ 80	+ 180	+ 230	+ 630	+ 170	+ 1 040	- 610
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 120**	- 40	+ 80	+ 200	+ 230	+ 630	+ 170	+ 1 090	- 610
	3	6	**4 580**	- 40	+ 90	+ 230	+ 260	+ 660	+ 190	+ 1 260	- 720
THREE SPLR FAULT	FULL	0	**4 440**	- 40	+ 90	+ 230	+ 250	+ 660	+ 190	+ 1 280	- 700
	3	6	**4 900**	- 40	+ 90	+ 260	+ 280	+ 690	+ 210	+ 1 450	- 810
ALL SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
GND SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
SEC 1 or SEC 3 FAULT	FULL	0	**3 940**	- 30	+ 80	+ 190	+ 210	+ 610	+ 170	+ 990	- 560
	3	6	**4 220**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 060	- 610
SEC 2 FAULT	FULL	0	**3 640**	- 30	+ 70	+ 160	+ 190	+ 590	+ 150	+ 840	- 480
	3	6	**3 930**	- 30	+ 70	+ 170	+ 210	+ 600	+ 160	+ 920	- 540
SEC 2+3 FAULT	FULL	0	**4 220**	- 40	+ 80	+ 210	+ 240	+ 640	+ 170	+ 1 150	- 640
	3	6	**4 680**	- 40	+ 90	+ 240	+ 270	+ 670	+ 200	+ 1 320	- 750
SEC 1+3 FAULT	FULL	0	**4 710**	- 40	+ 90	+ 260	+ 270	+ 690	+ 200	+ 1 450	- 870
	3	6	**5 200**	- 50	+ 100	+ 280	+ 310	+ 720	+ 220	+ 1 660	- 1 030
SEC 1+2 FAULT	FULL	0	**4 240**	- 40	+ 80	+ 220	+ 240	+ 640	+ 180	+ 1 160	- 690
	3	6	**4 490**	- 40	+ 80	+ 210	+ 250	+ 660	+ 190	+ 1 210	- 740
RUDDER JAM	FULL	0	**3 740**	- 40	+ 90	+ 170	+ 230	+ 640	+ 160	+ 880	- 500
	3	6	**4 070**	- 40	+ 90	+ 190	+ 250	+ 660	+ 190	+ 970	- 560
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 160**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 60	- 40
FLAPS<1	SLATS<1	3	45	**2 060**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 50	- 40
	SLATS≥1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 730**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 40
	SLATS≥1	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 630**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 30
	SLATS≥1	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
FLAPS=3	SLATS<1	3	25	**1 600**	- 10	+ 60	N/A	+ 70	+ 170	+ 60	+ 30	- 30
	1≤SLATS≤3	3	10	**1 390**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 320**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	SLATS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS FAULT	FLAPS<1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
	1≤FLAPS<2	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
	2≤FLAPS<3	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
	FLAPS=3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	FLAPS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
SLATS FAULT	SLATS<1	3	25	**1 590**	- 10	+ 50	N/A	+ 70	+ 160	+ 60	+ 40	- 30
	1≤SLATS≤3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 330**	- 10	+ 50	+ 80	+ 60	+ 160	+ 50	+ 30	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 770**	- 30	+ 70	N/A	+ 160	+ 300	+ 130	+ 110	- 140
FLAPS<1	SLATS<1	3	45	**2 650**	- 20	+ 70	N/A	+ 150	+ 290	+ 130	+ 110	- 130
	SLATS≥1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 280**	- 20	+ 60	N/A	+ 130	+ 260	+ 100	+ 90	- 100
	SLATS≥1	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
2≤FLAPS<3	SLATS<1	3	25	**2 150**	- 20	+ 60	N/A	+ 120	+ 250	+ 100	+ 80	- 90
	SLATS≥1	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
FLAPS=3	SLATS<1	3	25	**2 100**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 810**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 760**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
	SLATS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
FLAPS FAULT	FLAPS<1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
	2≤FLAPS<3	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
	FLAPS=3	3	10	**1 800**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	FLAPS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
SLATS FAULT	SLATS<1	3	25	**2 090**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 80
	1≤SLATS≤3	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 800**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
FLAPS<1	SLATS<1	3	45	**2 710**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
	SLATS≥1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
1≤FLAPS<2	SLATS<1	3	30	**2 420**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 150
	SLATS≥1	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
2≤FLAPS<3	SLATS<1	3	25	**2 310**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	SLATS≥1	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
FLAPS=3	SLATS<1	3	25	**2 260**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 140
	1≤SLATS≤3	3	10	**2 010**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 120
	SLATS>3	3	5	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 110
FLAPS>3	1≤SLATS≤3	FULL	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
FLAPS FAULT	FLAPS<1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	1≤FLAPS<2	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
	2≤FLAPS<3	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS=3	3	10	**2 010**	- 20	+ 40	+ 90	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
SLATS FAULT	SLATS<1	3	25	**2 240**	- 20	+ 40	N/A	+ 90	+ 200	+ 70	+ 80	- 120
	1≤SLATS≤3	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 910**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 180**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 260
FLAPS<1	SLATS<1	3	45	**3 080**	- 20	+ 50	N/A	+ 120	+ 270	+ 110	+ 160	- 250
	SLATS≥1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
1≤FLAPS<2	SLATS<1	3	30	**2 730**	- 20	+ 40	N/A	+ 110	+ 250	+ 100	+ 150	- 220
	SLATS≥1	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
2≤FLAPS<3	SLATS<1	3	25	**2 600**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 200
	SLATS≥1	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
FLAPS=3	SLATS<1	3	25	**2 530**	- 20	+ 40	N/A	+ 100	+ 240	+ 90	+ 130	- 190
	1≤SLATS≤3	3	10	**2 260**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	SLATS>3	3	5	**2 160**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
FLAPS>3	1≤SLATS≤3	FULL	10	**2 200**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 120	- 150
	SLATS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
FLAPS FAULT	FLAPS<1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
	1≤FLAPS<2	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
	2≤FLAPS<3	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
	FLAPS=3	3	10	**2 250**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	FLAPS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
SLATS FAULT	SLATS<1	3	25	**2 490**	- 20	+ 40	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150
	SLATS>3	3	5	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 390**	- 40	+ 100	N/A	+ 270	+ 560	+ 230	+ 420	- 480
FLAPS<1	SLATS<1	3	45	**4 240**	- 40	+ 100	N/A	+ 270	+ 560	+ 210	+ 420	- 460
	SLATS≥1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
1≤FLAPS<2	SLATS<1	3	30	**3 520**	- 40	+ 90	N/A	+ 220	+ 500	+ 160	+ 320	- 340
	SLATS≥1	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
2≤FLAPS<3	SLATS<1	3	25	**3 270**	- 30	+ 80	N/A	+ 200	+ 460	+ 160	+ 280	- 300
	SLATS≥1	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
FLAPS=3	SLATS<1	3	25	**3 090**	- 30	+ 80	N/A	+ 180	+ 430	+ 150	+ 240	- 260
	1≤SLATS≤3	3	10	**2 710**	- 30	+ 80	+ 180	+ 160	+ 430	+ 140	+ 220	- 220
	SLATS>3	3	5	**2 580**	- 30	+ 70	+ 180	+ 160	+ 430	+ 120	+ 210	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 410	+ 130	+ 190	- 190
	SLATS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
FLAPS FAULT	FLAPS<1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
	1≤FLAPS<2	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
	2≤FLAPS<3	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
	FLAPS=3	3	10	**2 710**	- 30	+ 80	+ 170	+ 170	+ 430	+ 130	+ 220	- 220
	FLAPS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
SLATS FAULT	SLATS<1	3	25	**3 020**	- 30	+ 80	N/A	+ 170	+ 390	+ 140	+ 210	- 230
	1≤SLATS≤3	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190
	SLATS>3	3	5	**2 530**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 190	- 180

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
1≤FLAPS<2	SLATS<1	3	30	**5 410**	- 30	+ 50	N/A	+ 250	+ 770	+ 210	+ 2 230	- 1 060
	SLATS≥1	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
2≤FLAPS<3	SLATS<1	3	25	**5 080**	- 30	+ 50	N/A	+ 230	+ 750	+ 190	+ 2 100	- 980
	SLATS≥1	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
FLAPS=3	SLATS<1	3	25	**4 750**	- 30	+ 50	N/A	+ 210	+ 730	+ 190	+ 1 880	- 880
	1≤SLATS≤3	3	10	**4 380**	- 30	+ 50	+ 150	+ 200	+ 730	+ 170	+ 1 910	- 820
	SLATS>3	3	5	**4 240**	- 30	+ 50	+ 160	+ 190	+ 720	+ 160	+ 1 900	- 810
FLAPS>3	1≤SLATS≤3	FULL	10	**4 180**	- 20	+ 50	+ 150	+ 190	+ 710	+ 160	+ 1 750	- 760
	SLATS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
FLAPS FAULT	FLAPS<1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
	1≤FLAPS<2	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
	2≤FLAPS<3	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
	FLAPS=3	3	10	**4 370**	- 30	+ 50	+ 160	+ 200	+ 730	+ 170	+ 1 900	- 820
	FLAPS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
SLATS FAULT	SLATS<1	3	25	**4 270**	- 40	+ 70	N/A	+ 220	+ 600	+ 180	+ 860	- 550
	1≤SLATS≤3	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510
	SLATS>3	3	5	**3 790**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 500

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 390**	- 10	+ 50	+ 90	+ 50	+ 130	+ 50	+ 40	- 40
	3	6	**1 490**	- 10	+ 50	+ 90	+ 60	+ 140	+ 50	+ 40	- 50
B SYS LO PR	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
Y SYS LO PR	FULL	0	**1 320**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 890**	- 10	+ 50	N/A	+ 70	+ 150	+ 70	+ 60	- 80
G + Y	3	30	**2 690**	- 20	+ 60	N/A	+ 110	+ 210	+ 90	+ 130	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**1 530**	- 10	+ 60	+ 100	+ 60	+ 160	+ 60	+ 40	- 50

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 810**	- 20	+ 60	+ 140	+ 100	+ 250	+ 90	+ 90	- 90
	3	6	**2 010**	- 20	+ 60	+ 160	+ 120	+ 270	+ 100	+ 100	- 120
B SYS LO PR	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 60
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
Y SYS LO PR	FULL	0	**1 730**	- 20	+ 60	+ 140	+ 100	+ 240	+ 80	+ 80	- 70
	3	6	**1 880**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 30	+ 70	N/A	+ 160	+ 320	+ 120	+ 160	- 220
G + Y	3	30	**3 090**	- 30	+ 90	N/A	+ 180	+ 340	+ 140	+ 210	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 100**	- 10	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 150

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 950**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 690**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 140	- 230
G + Y	3	30	**3 020**	- 20	+ 60	N/A	+ 130	+ 250	+ 110	+ 180	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 300**	- 10	+ 40	+ 130	+ 100	+ 230	+ 80	+ 120	- 200

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 170
	3	6	**2 350**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 200
B SYS LO PR	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 140
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 160
Y SYS LO PR	FULL	0	**2 180**	- 20	+ 40	+ 130	+ 90	+ 240	+ 80	+ 130	- 170
	3	6	**2 340**	- 20	+ 40	+ 130	+ 100	+ 250	+ 90	+ 140	- 190
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 020**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 200	- 300
G + Y	3	30	**3 400**	- 30	+ 60	N/A	+ 150	+ 290	+ 120	+ 250	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 580**	- 10	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 160	+ 420	+ 120	+ 220	- 220
	3	6	**2 850**	- 30	+ 90	+ 230	+ 180	+ 440	+ 170	+ 270	- 280
B SYS LO PR	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 180
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 210
Y SYS LO PR	FULL	0	**2 580**	- 30	+ 80	+ 200	+ 170	+ 420	+ 130	+ 230	- 220
	3	6	**2 820**	- 30	+ 90	+ 200	+ 180	+ 440	+ 150	+ 270	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 850**	- 40	+ 110	N/A	+ 250	+ 530	+ 180	+ 420	- 490
G + Y	3	30	**4 380**	- 50	+ 120	N/A	+ 290	+ 560	+ 220	+ 550	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**3 180**	- 30	+ 100	+ 220	+ 210	+ 490	+ 180	+ 350	- 380

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 860**	- 30	+ 70	+ 180	+ 210	+ 610	+ 160	+ 950	- 550
	3	6	**4 310**	- 40	+ 80	+ 200	+ 240	+ 640	+ 180	+ 1 110	- 680
B SYS LO PR	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 520
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 570
Y SYS LO PR	FULL	0	**3 950**	- 30	+ 80	+ 190	+ 220	+ 610	+ 170	+ 990	- 430
	3	6	**4 230**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 070	- 490
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	30	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**4 700**	- 30	+ 90	+ 220	+ 260	+ 670	+ 200	+ 1 250	- 670

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 750**	- 20	+ 60	+ 100	+ 70	+ 190	+ 60	+ 70	- 60
	3	6	**1 880**	- 20	+ 70	+ 100	+ 70	+ 190	+ 70	+ 80	- 70
AUTO BRK FAULT	FULL	0	**1 320**	- 10	+ 50	+ 80	+ 50	+ 140	+ 40	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 80	+ 60	+ 150	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 800**	- 20	+ 60	+ 110	+ 80	+ 230	+ 70	+ 80	- 60
	3	6	**1 940**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 90	- 70
AUTO BRK FAULT	FULL	0	**1 680**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 70	- 60
	3	6	**1 840**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 790**	- 10	+ 60	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 70	+ 100	+ 80	+ 200	+ 70	+ 80	- 100
AUTO BRK FAULT	FULL	0	**1 790**	- 10	+ 30	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 230	+ 60	+ 100	- 120
	3	6	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 150**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 380	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 180
AUTO BRK FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 370	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 190

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 510**	- 30	+ 70	+ 160	+ 180	+ 570	+ 150	+ 780	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510
AUTO BRK FAULT	FULL	0	**3 520**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 510

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 170	+ 90	+ 220	+ 90	+ 30	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 450**	- 20	+ 50	+ 160	+ 100	+ 250	+ 90	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 190	- 50
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 160	+ 200	+ 600	+ 160	+ 870	- 460
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 890**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 40	- 40
	3	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 350**	- 10	+ 50	+ 90	+ 60	+ 150	+ 60	+ 30	- 30
	3	16	**1 450**	- 10	+ 50	+ 90	+ 70	+ 160	+ 60	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 480**	- 20	+ 70	N/A	+ 130	+ 260	+ 110	+ 90	- 130
	3	10	**1 780**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 70	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 740**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 60	- 70
	3	16	**1 900**	- 20	+ 60	+ 110	+ 100	+ 230	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 560**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 170
	3	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 920**	- 10	+ 40	+ 90	+ 80	+ 190	+ 60	+ 70	- 110
	3	16	**2 060**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 860**	- 20	+ 50	N/A	+ 110	+ 240	+ 100	+ 140	- 230
	3	10	**2 190**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 160
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 130**	- 20	+ 40	+ 100	+ 80	+ 220	+ 80	+ 100	- 150
	3	16	**2 290**	- 20	+ 40	+ 110	+ 90	+ 220	+ 80	+ 110	- 170

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 690**	- 40	+ 90	N/A	+ 210	+ 450	+ 170	+ 280	- 400
	3	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 380	+ 140	+ 200	- 220
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 510**	- 30	+ 70	+ 160	+ 140	+ 360	+ 130	+ 170	- 200
	3	16	**2 770**	- 30	+ 80	+ 140	+ 160	+ 390	+ 120	+ 190	- 250

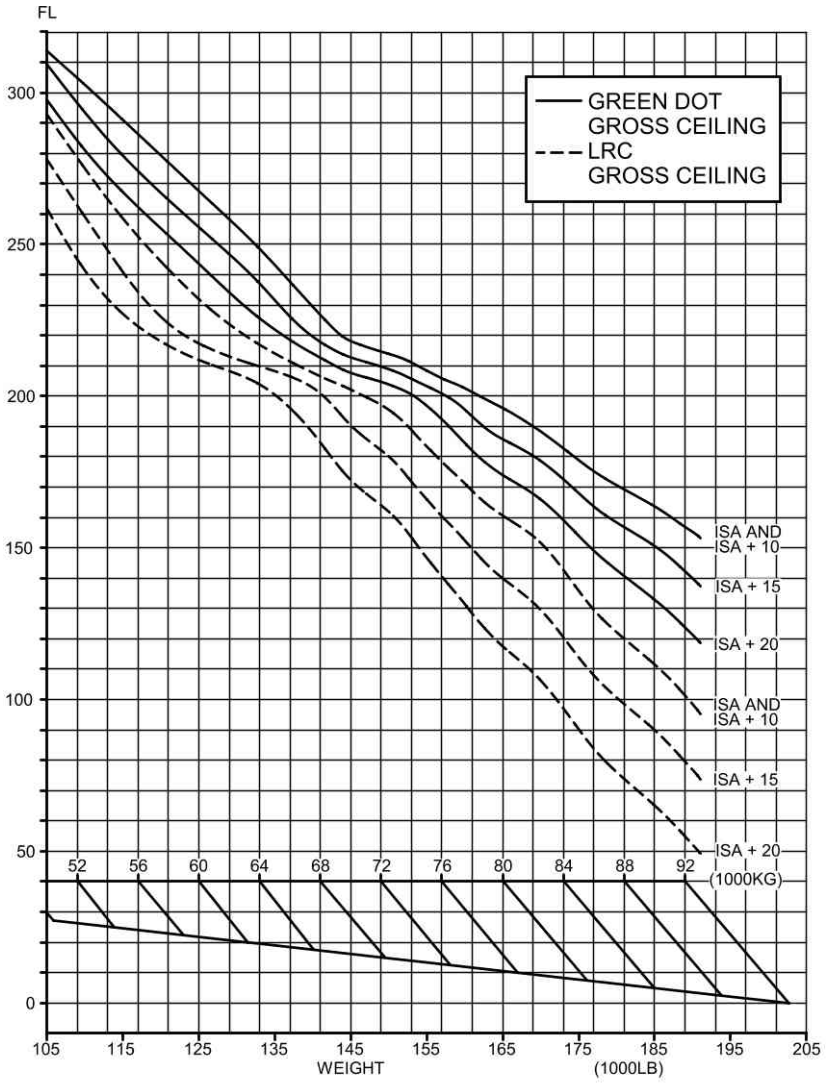
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**5 030**	- 50	+ 90	N/A	+ 230	+ 580	+ 190	+ 910	- 860
	3	10	**3 790**	- 40	+ 80	+ 160	+ 180	+ 530	+ 150	+ 720	- 600
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 630**	- 30	+ 80	+ 150	+ 170	+ 520	+ 150	+ 650	- 540
	3	16	**3 940**	- 40	+ 80	+ 150	+ 180	+ 530	+ 150	+ 720	- 620

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-1 300 ft	-1 400 ft	-1 400 ft
	TOTAL ANTI ICE ON	-2 800 ft	-2 800 ft	-2 800 ft	-3 000 ft
GREEN DOT	ENGINE ANTI ICE ON	-1 000 ft	-1 000 ft	-1 100 ft	-1 200 ft
	TOTAL ANTI ICE ON	-2 100 ft	-2 100 ft	-2 300 ft	-2 500 ft

Note: For weights 85 000 kg or 187 400 lb, one engine ceilings at Long Range speed may be overestimated by FMS Legacy. In this case, ceiling values provided in the above graph should be retained.

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL(1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50				174 32 198 .9 31700	228 42 200 1.1 31800	262 47 202 1.3 31900	288 52 204 1.3 31900
54			156 29 202 .9 30100	222 41 204 1.2 30200	258 47 206 1.4 30300	285 52 208 1.5 30300	308 55 210 1.5 30400
58		152 29 206 .9 28200	231 43 208 1.3 28500	269 50 210 1.5 28600	298 54 212 1.7 28600	320 58 214 1.7 28700	339 61 216 1.8 28700
62		236 45 212 1.5 26400	279 52 214 1.7 26600	309 57 216 1.8 26600	333 61 218 1.9 26700	352 64 220 2.0 26700	369 67 222 2.1 26800
66	155 30 214 1.1 24200	281 53 218 1.8 24600	314 59 220 2.0 24600	339 63 222 2.1 24700	360 67 224 2.2 24700	378 69 226 2.3 24800	393 71 228 2.3 24800
70	231 45 220 1.7 22600	311 59 224 2.1 22800	335 63 226 2.2 22800	357 67 228 2.3 22900	376 70 230 2.4 22900	392 72 232 2.5 22900	406 74 234 2.5 23000
74	214 41 226 1.6 21300	278 53 230 2.0 21400	301 56 232 2.1 21400	321 60 234 2.2 21500	339 62 236 2.2 21500	354 65 238 2.3 21500	
78	212 40 232 1.6 20500	264 49 236 1.9 20600	283 52 238 2.0 20600	301 55 240 2.1 20600	316 57 242 2.2 20600	330 60 244 2.2 20600	
82	242 46 238 1.9 19600	282 52 242 2.1 19700	298 55 244 2.2 19700	313 57 246 2.3 19700	326 59 248 2.3 19800		
86	278 52 244 2.3 18400	317 58 248 2.5 18400	332 61 250 2.6 18500	346 63 252 2.6 18500	359 65 254 2.7 18500		
90	300 56 250 2.6 17100	335 61 254 2.7 17200	349 64 256 2.8 17200	363 66 258 2.9 17200			
94	317 59 256 2.8 15900	350 64 260 3.0 15900	363 66 262 3.0 16000	375 67 264 3.1 16000			

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 15 %	+ 12 %	+ 18 %	- 200 FT
TOTAL ANTI ICE ON	+ 20 %	+ 24 %	+ 33 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.181 .442 1972 244	1.250 .480 1915 241	1.319 .507 1856 236	1.369 .530 1874 237	1.417 .549 1870 236	1.472 .571 1875 236
54	1.199 .454 2093 251	1.281 .494 2047 249	1.363 .529 2029 246	1.411 .548 2028 246	1.464 .569 2032 245	1.520 .588 2034 243
58	1.223 .466 2224 258	1.310 .506 2174 255	1.402 .546 2185 255	1.454 .567 2190 254	1.510 .587 2196 253	1.554 .591 2138 244
62	1.253 .484 2387 268	1.344 .521 2330 263	1.441 .562 2343 262	1.497 .583 2354 262	1.536 .585 2277 252	1.568 .551 2121 227
66	1.278 .495 2519 274	1.380 .538 2499 272	1.480 .578 2504 270	1.534 .595 2503 267	1.548 .548 2252 235	
70	1.303 .506 2651 280	1.412 .552 2651 278	1.517 .591 2667 277	1.547 .578 2519 260		
74	1.327 .515 2785 286	1.446 .567 2818 286	1.549 .600 2811 281	1.562 .528 2482 236		
78	1.359 .531 2968 295	1.478 .579 2979 293	1.557 .577 2795 270			
82	1.385 .543 3124 301	1.510 .592 3146 299	1.574 .523 2758 243			
86	1.412 .554 3282 308	1.519 .580 3163 293				
90	1.440 .567 3449 315	1.529 .559 3158 282				
94	1.456 .569 3540 316	1.549 .512 3139 258				
ENGINE ANTI ICE ON △FUEL = + 2 %				TOTAL ANTI ICE ON △FUEL = + 4 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1510 0.46	1317 0.44	1180 0.42	1131 0.41	1083 0.41	1061 0.41	9	7	6
300	2259 1.06	2008 1.03	1826 0.59	1762 0.58	1699 0.57	1670 0.58	15	14	13
400	3004 1.27	2694 1.22	2468 1.17	2388 1.15	2312 1.14	2276 1.15	21	20	20
500	3745 1.47	3377 1.41	3106 1.34	3010 1.32	2921 1.31	2877 1.32	27	27	27
600	4481 2.08	4055 2.00	3739 1.52	3628 1.49	3527 1.48	3475 1.49	34	34	34
700	5212 2.28	4729 2.19	4369 2.10	4241 2.07	4129 2.04	4069 2.05	40	40	41
800	5938 2.49	5400 2.39	4994 2.28	4851 2.24	4727 2.21	4659 2.22	46	47	48
900	6659 3.10	6066 2.58	5615 2.46	5456 2.41	5320 2.38	5247 2.38	52	53	54
1000	7376 3.31	6728 3.17	6232 3.04	6058 2.59	5907 2.55	5831 2.55	58	60	61
1100	8088 3.52	7387 3.37	6845 3.22	6656 3.16	6490 3.12	6413 3.11	63	66	68
1200	8798 4.13	8042 3.56	7454 3.41	7250 3.34	7070 3.29	6991 3.28	69	73	74
1300	9506 4.34	8693 4.16	8059 3.59	7840 3.52	7645 3.46	7566 3.44	75	79	81
1400	10209 4.55	9340 4.36	8661 4.17	8427 4.10	8217 4.03	8137 4.00	81	86	87

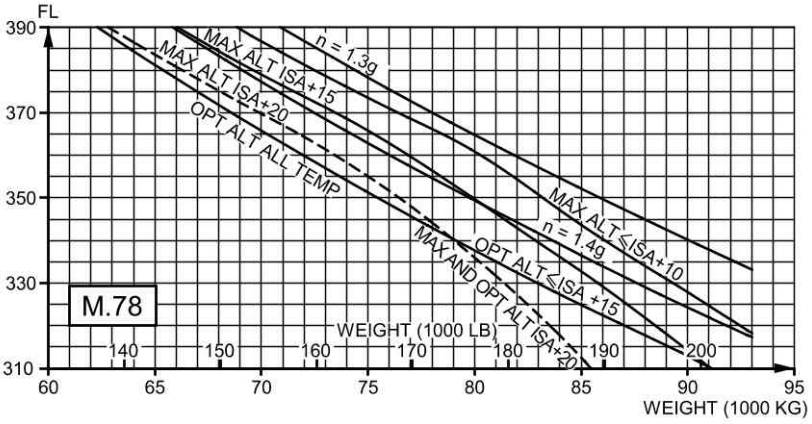
ENGINE ANTI ICE ON
△FUEL = + 2 %

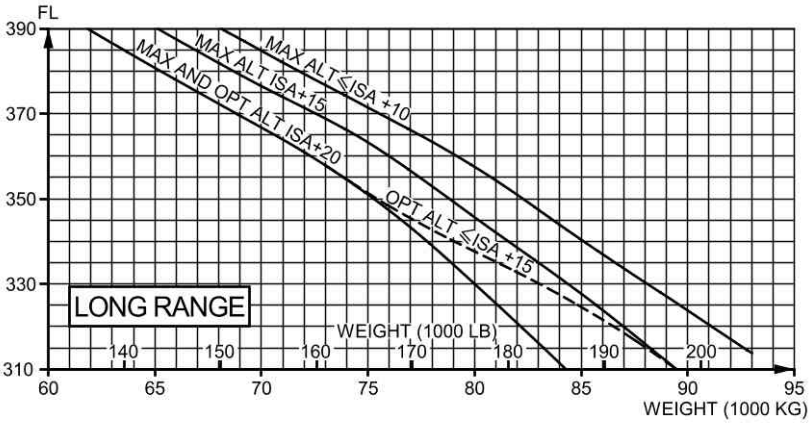
TOTAL ANTI ICE ON
△FUEL = + 4 %

FLIP23 A321-131 IAE V2530-A5 3610 03301.001011 0250300 .7801 .000100 140 0300350 60 0 100100 40100 18590 CL-N0-04-07-150

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES





CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 500 ft Opt ALT :- 300 ft	Max ALT : -1 100 ft Opt ALT : - 300 ft
ISA +15	Max ALT : - 700 ft Opt ALT : - 300 ft	Max ALT : -1 500 ft Opt ALT : - 600 ft
ISA +20	Max ALT : -1 000 ft Opt ALT : -1 000 ft	Max ALT : -2 300 ft Opt ALT : -2 300 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 – DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 65000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	1037 0.36	978 0.36	926 0.36	880 0.36	842 0.36	816 0.36	1	2	4
400	2281 1.02	2158 1.02	2049 1.02	1956 1.03	1885 1.03	1854 1.03	7	10	20
600	3518 1.27	3329 1.28	3164 1.29	3023 1.29	2918 1.30	2875 1.30	13	18	33
800	4747 1.53	4494 1.54	4271 1.55	4081 1.56	3939 1.56	3882 1.56	19	25	45
1000	5970 2.19	5650 2.20	5370 2.22	5131 2.23	4951 2.23	4874 2.23	25	33	57
1200	7185 2.45	6799 2.47	6461 2.48	6171 2.49	5952 2.50	5852 2.50	31	40	67
1400	8393 3.11	7941 3.13	7544 3.14	7204 3.16	6944 3.17	6816 3.17	36	47	77
1600	9596 3.37	9076 3.39	8620 3.41	8228 3.43	7925 3.44	7768 3.44	41	54	86
1800	10792 4.03	10205 4.05	9689 4.07	9244 4.09	8898 4.10	8707 4.10	46	60	94
2000	11983 4.29	11327 4.31	10751 4.34	10254 4.36	9865 4.37	9640 4.37	51	66	102
2200	13167 4.55	12442 4.58	11806 5.00	11256 5.03	10825 5.04	10566 5.04	56	73	110
2400	14345 5.21	13551 5.24	12855 5.26	12251 5.29	11776 5.31	11482 5.31	61	79	117
2600	15518 5.47	14654 5.50	13897 5.53	13239 5.56	12720 5.58	12388 5.58	65	85	125
2800	16685 6.13	15750 6.16	14932 6.19	14220 6.23	13657 6.24	13286 6.24	68	90	131
3000	17851 6.39	16841 6.42	15961 6.46	15195 6.49	14586 6.51	14175 6.51	72	96	138

ECON AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.6 %	△FUEL = + 2 %	△FUEL = + 5 %

FLIP22B A321-131 IAE V2530-A5&3610 03301.300211 0250300 .7800 .000200 140 0300350 65 0 100100 40100 18590 CL-N0-CL-004-009-150

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 50 kg/min in the FMGC.
  or
- CI_{LRC} = 70 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	60				80				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.7	173	100	IDLE					241
370	15.9	166	95	IDLE	18.0	186	108	IDLE	252
350	15.2	159	90	IDLE	17.3	179	103	IDLE	264
330	14.6	153	85	IDLE	16.6	173	98	IDLE	277
310	14.0	148	81	IDLE	16.0	167	93	IDLE	289
290	13.5	143	76	IDLE	15.3	161	88	IDLE	300
270	12.8	137	71	IDLE	14.5	154	81	IDLE	300
250	12.1	131	66	IDLE	13.6	146	75	IDLE	300
240	11.7	127	63	IDLE	13.2	143	72	IDLE	300
220	11.0	121	58	IDLE	12.3	135	66	IDLE	300
200	10.2	114	53	IDLE	11.5	127	60	IDLE	300
180	9.5	108	48	IDLE	10.5	119	54	IDLE	300
160	8.7	100	43	IDLE	9.6	110	48	IDLE	300
140	7.9	93	39	IDLE	8.7	101	42	IDLE	300
120	7.1	85	34	IDLE	7.7	92	37	IDLE	300
100	6.3	76	29	IDLE	6.7	81	31	IDLE	300
50	2.4	30	10	IDLE	2.5	32	11	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	ECON AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 1 min	+ 3 min	+ 0.2 %
FUEL	– 2 %	+ 17 %	+ 90 %	+ 0.7 %
DISTANCE	–	+ 4 %	+ 20 %	+ 0.4 %

10B-08FA321-131IAEV2530-A523100000C5KG330001859000-1-350.015.0.00003.780300.000250.0000 FCOM-N0-03-05-30-002-150

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 120 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 100 KG (4MIN)

REF. LDG WT AT DEST. = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	601 0.12						2		
60	775 0.16						4		
80	950 0.20	898 0.19					5		
100	1124 0.23	1056 0.23	1035 0.22				6	6	
120	1299 0.27	1213 0.26	1172 0.26	1172 0.25			7	7	
140	1474 0.31	1371 0.30	1310 0.29	1294 0.28			8	8	
160	1649 0.35	1529 0.33	1447 0.32	1416 0.31	1423 0.31		9	8	10
180	1825 0.39	1687 0.37	1585 0.35	1539 0.35	1536 0.34	1547 0.33	10	9	12
200	2000 0.43	1845 0.40	1723 0.38	1662 0.38	1650 0.36	1654 0.36	11	10	13
220	2176 0.46	2003 0.44	1860 0.42	1784 0.41	1763 0.39	1761 0.39	12	10	14
240	2352 0.50	2161 0.47	1998 0.45	1907 0.44	1877 0.42	1869 0.41	13	11	15
260	2529 0.54	2320 0.50	2136 0.48	2030 0.47	1991 0.45	1976 0.44	15	12	16
280	2705 0.58	2479 0.54	2274 0.51	2153 0.50	2105 0.48	2084 0.47	16	13	17
300	2882 1.02	2638 0.57	2413 0.54	2277 0.53	2220 0.51	2192 0.50	17	13	18
320	3059 1.05	2797 1.01	2551 0.58	2400 0.57	2334 0.54	2300 0.53	18	14	20
340	3236 1.09	2956 1.04	2689 1.01	2524 1.00	2449 0.57	2408 0.55	19	15	21
360	3414 1.13	3115 1.07	2828 1.04	2647 1.03	2563 1.00	2516 0.58	20	16	22
380	3591 1.17	3275 1.11	2966 1.07	2771 1.06	2678 1.03	2625 1.01	21	16	23
400	3769 1.21	3435 1.14	3105 1.10	2895 1.09	2793 1.06	2733 1.04	22	17	24
420	3947 1.24	3594 1.18	3243 1.14	3019 1.12	2908 1.09	2842 1.06	23	18	25
440	4125 1.28	3754 1.21	3382 1.17	3143 1.15	3023 1.12	2951 1.09	25	19	26
460	4304 1.32	3915 1.24	3521 1.20	3267 1.18	3138 1.15	3060 1.12	26	20	27
480	4482 1.35	4075 1.28	3660 1.23	3392 1.21	3253 1.18	3169 1.15	27	20	28
500	4661 1.39	4235 1.31	3799 1.26	3516 1.25	3369 1.21	3278 1.18	28	21	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 4 %	△FUEL = + 6 %

CL-N0-04-13-155

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 140 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

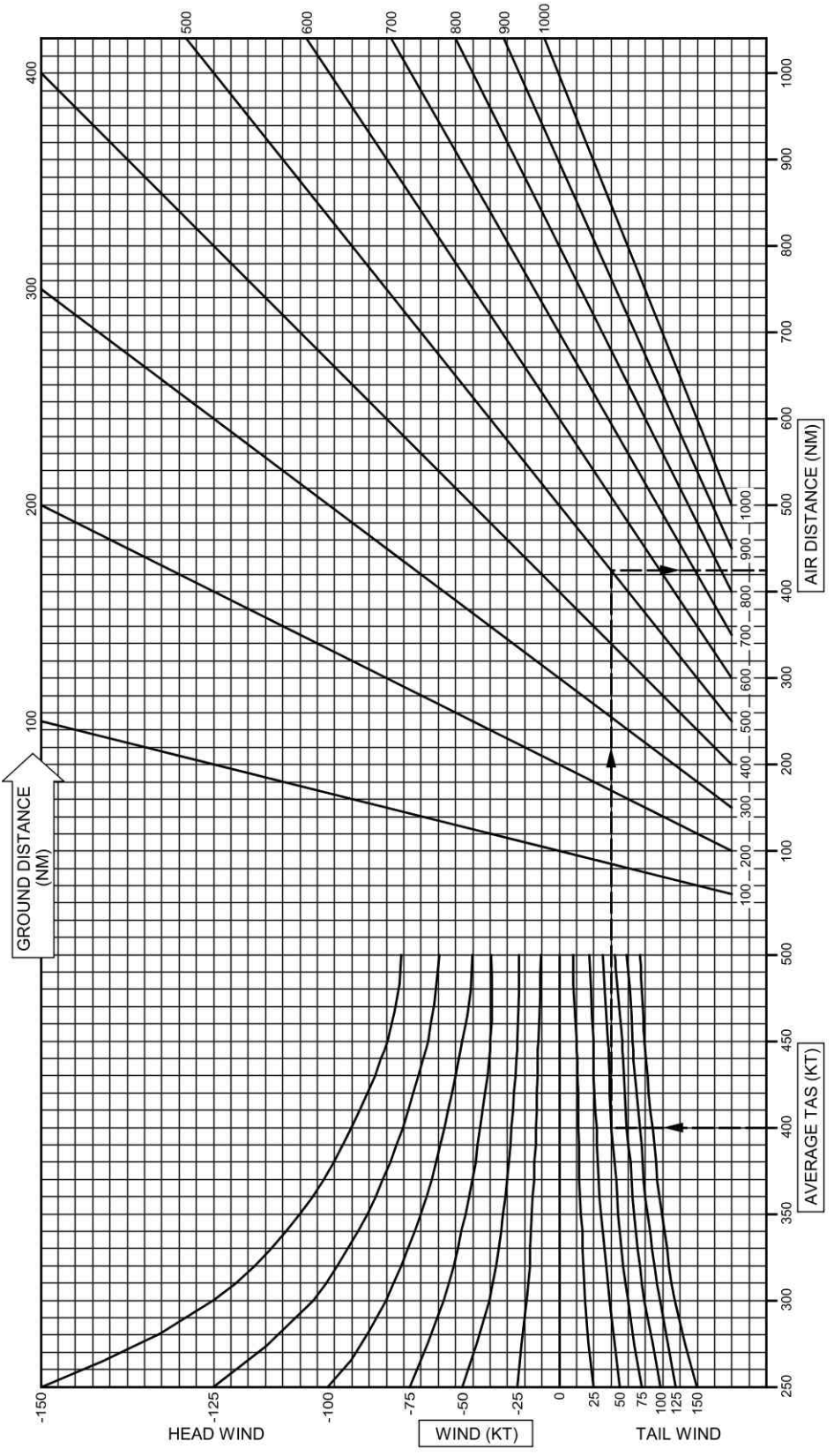
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	65	70	75	80	85	90	95
40	337 0.15	339 0.15	342 0.15	347 0.15	353 0.15	361 0.15	370 0.15
60	515 0.18	523 0.18	531 0.18	540 0.18	551 0.18	561 0.18	571 0.18
80	693 0.22	706 0.22	719 0.21	733 0.21	748 0.21	761 0.21	773 0.21
100	871 0.26	890 0.25	908 0.25	926 0.24	945 0.24	960 0.24	975 0.24
120	1048 0.30	1073 0.29	1096 0.28	1119 0.28	1141 0.27	1160 0.27	1176 0.27
140	1226 0.33	1256 0.32	1284 0.31	1312 0.31	1338 0.30	1359 0.30	1378 0.30
160	1403 0.37	1438 0.36	1472 0.35	1504 0.34	1534 0.33	1559 0.33	1580 0.33
180	1580 0.41	1621 0.39	1659 0.38	1696 0.37	1731 0.36	1758 0.36	1782 0.36
200	1757 0.45	1803 0.43	1846 0.42	1888 0.41	1927 0.39	1957 0.39	1984 0.39
220	1933 0.48	1985 0.46	2034 0.45	2080 0.44	2123 0.43	2156 0.42	2185 0.42
240	2110 0.52	2167 0.50	2221 0.48	2271 0.47	2319 0.46	2355 0.45	2387 0.45
260	2286 0.56	2349 0.53	2407 0.52	2463 0.51	2515 0.49	2554 0.48	2589 0.48
280	2462 1.00	2530 0.57	2594 0.55	2654 0.54	2710 0.52	2753 0.51	2791 0.51
300	2637 1.04	2711 1.00	2780 0.58	2845 0.57	2906 0.55	2952 0.54	2993 0.54
320	2813 1.07	2892 1.04	2967 1.02	3036 1.00	3101 0.59	3150 0.57	3195 0.57
340	2988 1.11	3073 1.07	3153 1.05	3227 1.04	3296 1.02	3349 1.00	3397 1.00
360	3164 1.15	3254 1.11	3339 1.09	3417 1.07	3491 1.05	3547 1.03	3599 1.03
380	3339 1.19	3434 1.15	3524 1.12	3608 1.10	3686 1.08	3745 1.05	3800 1.05
400	3513 1.23	3615 1.18	3710 1.15	3798 1.14	3881 1.12	3943 1.08	4001 1.08
420	3688 1.26	3795 1.22	3895 1.19	3988 1.17	4076 1.15	4141 1.11	4202 1.11
440	3862 1.30	3975 1.25	4080 1.22	4177 1.20	4270 1.18	4339 1.14	4402 1.14
460	4037 1.34	4154 1.29	4265 1.26	4367 1.24	4465 1.22	4537 1.17	4603 1.17
480	4211 1.38	4334 1.33	4450 1.29	4557 1.27	4659 1.25	4735 1.20	4803 1.20
500	4384 1.42	4513 1.36	4635 1.33	4746 1.30	4853 1.28	4932 1.23	5003 1.23
520	4558 1.46	4692 1.40	4819 1.36	4935 1.34	5047 1.32	5130 1.26	5203 1.26
540	4732 1.49	4871 1.43	5003 1.40	5124 1.37	5241 1.35	5327 1.29	5403 1.29

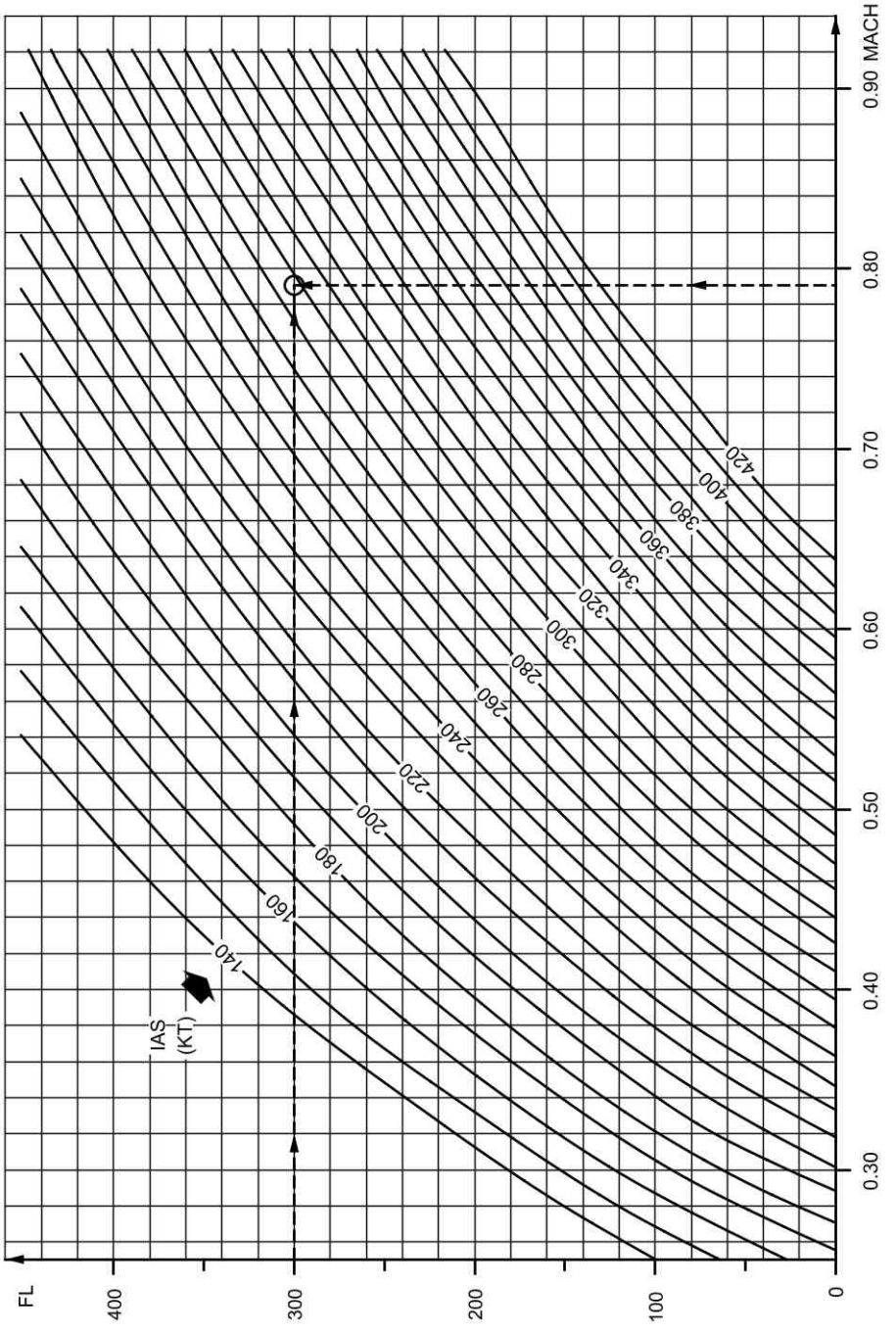
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = − 2 %	△FUEL = + 3 %	△FUEL = + 5 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

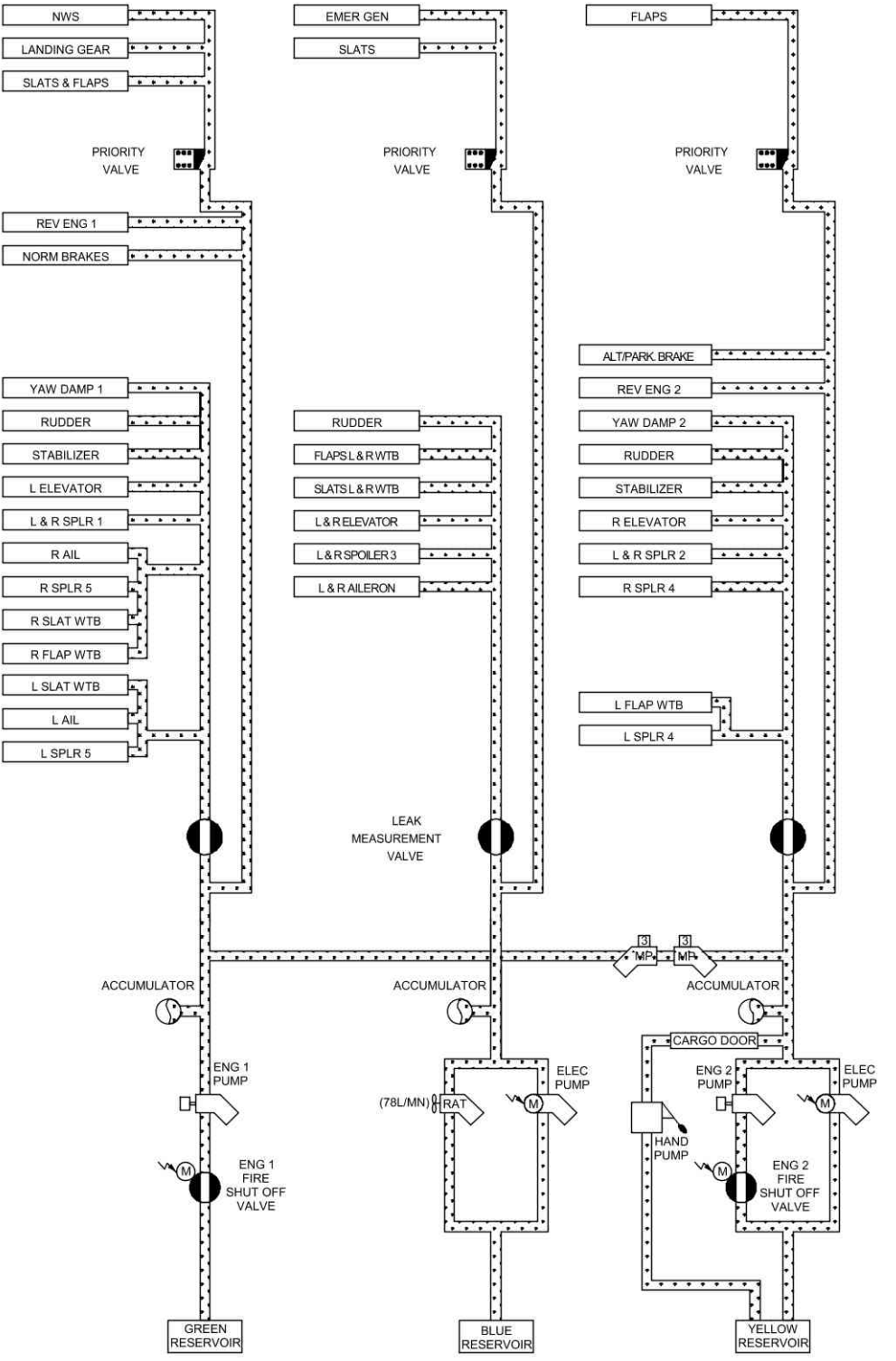
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)										
		54	58	62	66	70	74	78	82	86	90	94
		N1 %										
390	**0.76**	79.4	80.6	-	-	-	-	-	-	-	-	-
370	**0.76**	77.9	78.9	80.0	81.2	-	-	-	-	-	-	-
350	**0.76**	77.2	77.9	78.8	79.7	80.7	-	-	-	-	-	-
330	**0.76**	76.9	77.6	78.2	79.0	79.8	80.7	81.6	-	-	-	-
310	**0.76**	76.7	77.3	77.9	78.5	79.2	79.9	80.6	81.5	82.4	-	-
290	**0.76**	76.7	77.2	77.7	78.2	78.8	79.4	80.0	80.6	81.4	82.1	83.0
270	**300**	76.2	76.6	77.0	77.5	78.0	78.5	79.1	79.6	80.3	80.9	81.6
250	**300**	75.0	75.4	75.8	76.2	76.7	77.1	77.7	78.2	78.9	79.5	80.2
200	**300**	72.2	72.5	72.9	73.3	73.7	74.2	74.7	75.2	75.8	76.4	77.0
150	**270**	65.5	65.9	66.5	67.0	67.7	68.4	69.2	70.3	71.0	71.8	72.6
100	**270**	62.5	62.9	63.5	64.0	64.6	65.3	66.0	66.8	67.6	68.4	69.2
50	**270**	59.1	59.5	60.0	60.5	61.1	61.8	62.6	63.4	64.2	65.0	65.7

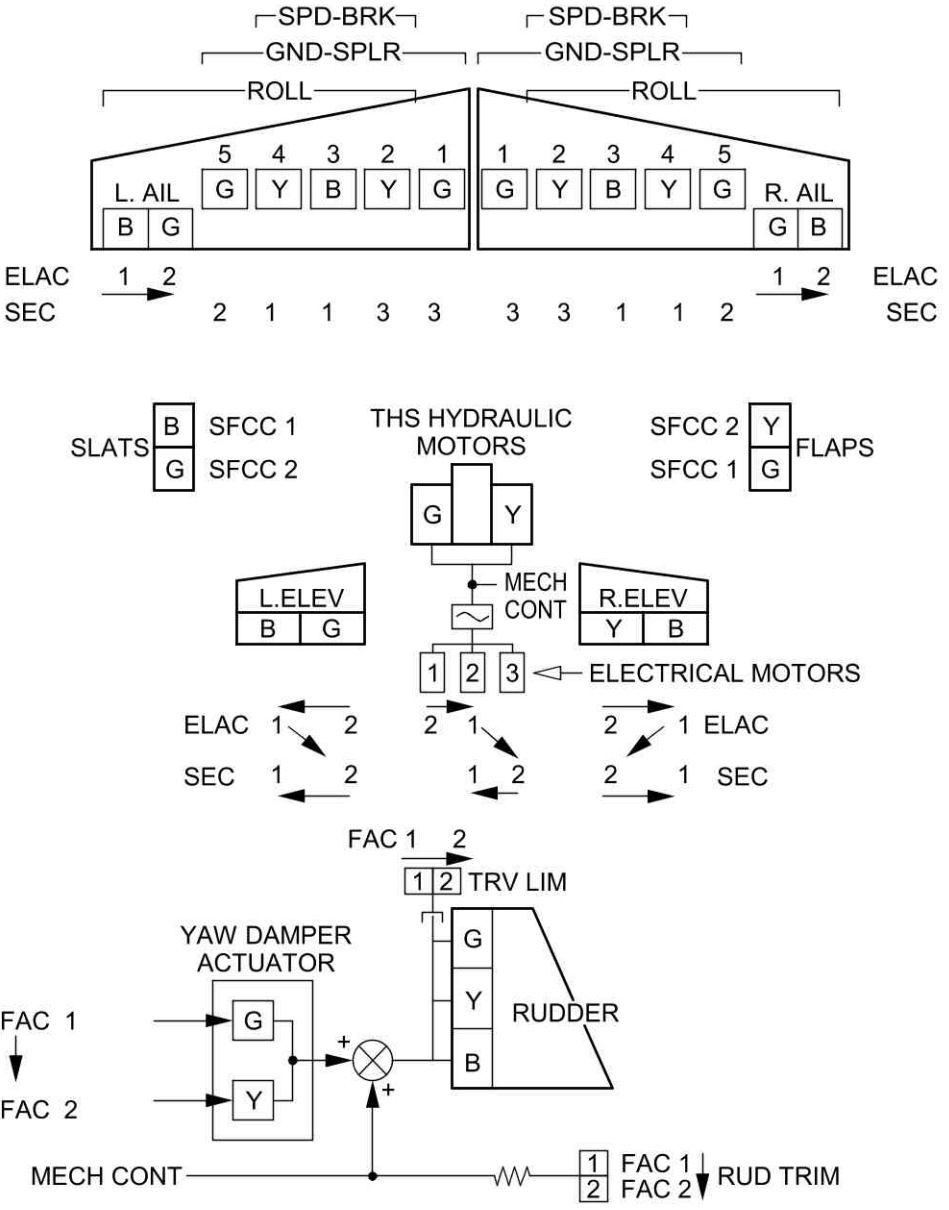
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTE**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTE**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTE**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTE**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTE**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTE**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTE**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HTF

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HTF**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HTF**				
	OEB30 issue 1.0	W	N	30 MAR 12	No SRS Engagement During Go Around Below MDA
	Criteria: SA **Applicable to: B-HTF**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HTF**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HTF**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HTF**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HTF**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-30	No SRS Engagement During Go Around Below MDA	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTF** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	0633	HDA 0103	B-HTF	321-231

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	K2113		30 AUG 10	FUSELAGE - REAR FUSELAGE SECTION 16A - DEFINE A321 BASIC STRUCTURE
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	27-1189 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L94 SOFTWARE STANDARD.
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	27-1182 03		25 NOV 11	FLIGHT CONTROL - ELAC SYSTEM - INTRODUCE ELAC L93 SOFTWARE STANDARD.
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P3112		25 NOV 11	NAVIGATION - INSTALL A TCAS II COLLINS SYSTEM
	Applicable to: ALL			
	27-1183 02		30 MAY 12	FLIGHT CONTROL - ELAC - ACTIVATE HIGH ALTITUDE UPSETS VMO/MMO OVERSHOOT PROTECTION FUNCTION ON ELAC.
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	34-1143 08		30 AUG 10	NAVIGATION - GLOBAL POSITIONING SYSTEM - ACTIVATE A PRIMARY GPS MEANS OF NAVIGATION USING LITTON GPS (CLASS C1 - HYBRID ARCHITECTURE).
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P4287	31-1113 30 31-1264 04	07 APR 11	INDICATING/RECORDING SYSTEMS - FWC - DEFINE OEB REMINDER WITHIN FWC STD -E1 AND SUBSEQUENT
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	34-1101 24		30 AUG 10	NAVIGATION - TRAFFIC COLLISION AVOIDANCE SYSTEM - INSTALL TCAS II COLLINS SYSTEM.
	Applicable to: ALL			
	P3341		30 AUG 10	LANDING GEAR - WHEELS AND BRAKES - INSTALL MESSIER GOODRICH WHEELS AND BRAKES ON A321
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	34-1119 02		30 AUG 10	NAVIGATION - SATELLITE NAVIGATION - INSTALL DUAL LITTON GPS AS A SUPPLEMENTARY MEANS OF NAVIGATION.
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0070		30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	31-1141 04		30 AUG 10	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE FWC STANDARD H1P-E3P.
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	34-1205 11		30 AUG 10	NAVIGATION - EGPWS - ADAPT EGPWS PIN PROGRAMMING TO A321 AIRCRAFT CONFIGURATION.
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF.....27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

LOSS OF BRAKING 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
EGPWS ALERTS 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
TCAS WARNINGS 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[7] ENG DUAL FAILURE - FUEL REMAINING 70.01
[8] ENG DUAL FAILURE - NO FUEL REMAINING 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[9] **ABN-80 Miscellaneous**

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
Ditching 80.03
Forced Landing 80.04
EMER Descent 80.05
OVERWEIGHT LANDING..... 80.06
Stall Recovery 80.07
Stall Warning at Lift-Off 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
10 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	7	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	9	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	10	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	Add of HF 1
			The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04A	1	Clarification of the “EMERGENCY EVACUATION” procedure.
			Procedure updated to remove the instruction regarding which doors are to be used for evacuation, as cabin crew may be in a better position to assess which door should be used.
			Documentation update: Deletion of information.
ABN-34 ADR 1 + 2 + 3 FAULT	34.01	1	Documentation update: Addition of "ADR 1 + 2 + 3 FAULT" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	2	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	3	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	4	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	5	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	9	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	10	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG DUAL FAILURE - FUEL REMAINING	70.01	1	Documentation update: Addition of "ENG DUAL FAILURE - FUEL REMAINING" documentary unit

Localization Title	Page	ID	Reason
ABN-70 ENG DUAL FAILURE - NO FUEL REMAINING	70.02	2	Documentation update: Addition of "ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit
ABN-70 ENG RELIGHT (in flight)	70.03	3	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	4	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 EMER Descent	80.05	1	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	2	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	3	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	4	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2.....OFF
BLOWER + EXTRACT.....OVRD
Cabin air is extracted overboard.
ΔP..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2.....OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2.....OFF
BLOWER + EXTRACT..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
	AFT CRG ISOL VALVE	Norm	Inop	Inop
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
HYD	FIRE VALVES	Norm	Norm	Norm
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK USABLE BY GRAVITY: 2 t (4 400 lb) UNUSABLE
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  ECON FLOW..... OFF

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 or MEA**

  APU MASTER SW (if in ELEC EMER CONF).....ON
  PACK 1+2..... OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALLEY..... OFF
SIGNS.....ON
CKPT/CABIN COM..... ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMER
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATED:**
  DIVERSION.....INITIATE
  DESCENT (FL 100 or MEA, or minimum obstacle clearance altitude)..... INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

- **If smoke continues:**

PACK 1.....ON
PACK 2.....OFF

- **If smoke still continues:**

PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

- **If smoke continues:**

EMER EXIT LIGHT.....ON
BUS TIE.....OFF
GEN 2.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

- **If smoke still continues or if faulty equipment confirmed isolated:**

GEN 2.....ON
BUS TIE.....AUTO

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

● **If faulty equipment not confirmed isolated, before L/G extension:**
GEN 2..... ON
BUS TIE.....AUTO

SMOKE/FUMES REMOVAL..... CONSIDER

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

● **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
ELEC EMER CONFIG..... CONSIDER

● **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
NORMAL VENTILATION..... RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR..... MAN ON

● **WHEN EMER GEN AVAIL:**
APU GEN.....OFF
GEN 2..... OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

● **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
GEN 2.....ON
EMER ELEC GEN 1 LINE.....ON

● **WHEN A/C IS STOPPED:**
ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">215 kt</td><td rowspan="3">195 kt</td><td>190 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">190 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">215 kt</td><td>215 kt</td><td>195 kt</td><td>190 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">190 kt</td><td>190 kt</td><td>190 kt</td><td>190 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY..... STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING..... USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON
CTR TK L+R XFR..... OFF

- **On the lighter side:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS..... ON
  CTR TK L+R XFR.....ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- A tank is overflowing (due to pipe rupture in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each wing tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK L+R XFR..... OFF

Each engine is fed via its associated wing tank only.

WING TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each wing tank.

■ CASE 1 : IF ONE WING TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the wing tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  CTR TK L+R XFR..... ON
  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The wing tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER
CTR TK XFR (non-leaking side).....ON

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ **CASE 2 : IF BOTH WING TANKS DEPLETE AT A SIMILAR RATE:**

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**
  APU (if ON).....OFF
  This prevents additional fuel loss through the APU feeding line.
- **When fuel quantity in one wing tank is less than 3 t (6 600 lb):**
  CTR TK L+R XFR..... ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALLEY.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

1 **WHEN A/C STOPPED**

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

1

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

Note: *When the aircraft is in clean configuration, the flight control law reverts to direct law.*

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

2

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **"PULL UP" - "TERRAIN TERRAIN PULL UP" - "OBSTACLE OBSTACLE PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"CAUTION TERRAIN" - "CAUTION OBSTACLE":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

- **If "H" is written on the "5" key:**

  H KEY..... PRESS
  Degree marker, 0 decimal point, ENT and CLR lights come on.
  A/C HEADING..... ENTER

- **If "H" is not written on the "5" key:**

  A/C HEADING..... ENTER
  Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
  Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
  Heading will be displayed on the associated ND.
  "HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

3 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

4 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	F	4.0 / 70.7	4.0 / 66.4	4.0 / 61.5
2	F	7.0 / 68.9	7.0 / 64.6	7.0 / 59.9
1 + F	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
1	S	7.5 / 65.5	7.5 / 61.4	7.5 / 56.5
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

5 ## WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

6 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	270 kt	8.5 / CLB	9.0 / CLB	10.0 / CLB
FL 50 - FL 100		8.0 / CLB	8.0 / CLB	9.0 / CLB
FL 100 - FL 150		7.0 / CLB	7.0 / CLB	8.0 / CLB
FL 150 - FL 200		6.0 / CLB	6.0 / CLB	6.5 / CLB
FL 200 - FL 250	300 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
FL 250 - FL 280		3.5 / CLB	3.0 / CLB	3.0 / CLB
Above FL 280	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

7 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

8 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Above FL 280	M 0.76	-1.0 / IDLE	-1.5 / IDLE	-2.0 / IDLE
FL 280 - FL 200	300 kt	-0.5 / IDLE	-1.5 / IDLE	-2.5 / IDLE
FL 200 - FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-1.5 / IDLE
Below FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-2.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.0 / IDLE	2.0 / IDLE

9 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.0 / 63.4	5.0 / 59.4	5.0 / 54.6
1	S	7.5 / 65.6	7.5 / 61.4	7.5 / 56.6
1 + F (1)	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
2	F	7.0 / 68.5	7.0 / 64.7	7.0 / 59.9
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	4.0 / 74.8	4.0 / 71.0	4.0 / 65.8

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

10 ## FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	2.0 / 60.0	2.0 / 56.0	1.5 / 51.6

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE.....OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 60 000 kg/132 000 lb	*-2.5*
70 000 kg/154 000 lb	*-1.5*
80 000 kg/176 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.4 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED..... ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
94	*251*	*261*	*271*
92	*248*	*258*	*268*
88	*242*	*252*	*262*
86	*239*	*249*	*259*
84	*236*	*246*	*256*
82	*233*	*243*	*253*
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min.

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS.....ON
GALLEY.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR.....ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 and L/G DOWN) will be approximately 1.1 nm per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK.....ON

  ATC.....NOTIFY

  FIRE pushbutton (ENG and APU).....PUSH

  AGENTS (ENG and APU).....DISCH

  Engine Agent 2 is not available.

  - **If Evacuation required:**

    EVACUATION.....INITIATE

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 160 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**
L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU)..... PUSH
AGENT (ENG and APU)..... DISCH
Engine Agent 2 is not available.
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

2

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....240 KT/GREEN DOT

Initially, fly 240 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	**At or below FL 200**	**FL 300**	**FL 400**
80	230	240	250
78	227	237	247
76	224	234	244
74	221	231	241
72	218	228	238
70	215	225	235
68	212	222	232
66	209	219	229
64	206	216	226
62	203	213	223
60	200	210	220
58	197	207	217
56	194	204	214
54	191	201	211
52	188	198	208

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min .

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT.....PREPARE
SIGNS.....ON
GALLEY..... OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**
  RAM AIR..... ON

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3; L/G DOWN), will be approximately 1.1 N/m per 1 000 ft (with no wind).*

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....160 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt.

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank.....PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever.....DOWN
    APPROACH SPEED.....ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

GND SPLR.....ARM
MAX BRK PR.....1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK.....ON
  ATC.....NOTIFY

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

■ **If Evacuation required :**

EVACUATION.....INITIATE

ELT ⩤ .....CHECK EMITTING

If not, switch on the transmitter

■ **If Evacuation not required :**

CABIN CREW and PASSENGERS (PA).....NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

EVACUATION.....INITIATE

ELT ⩤ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

3 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

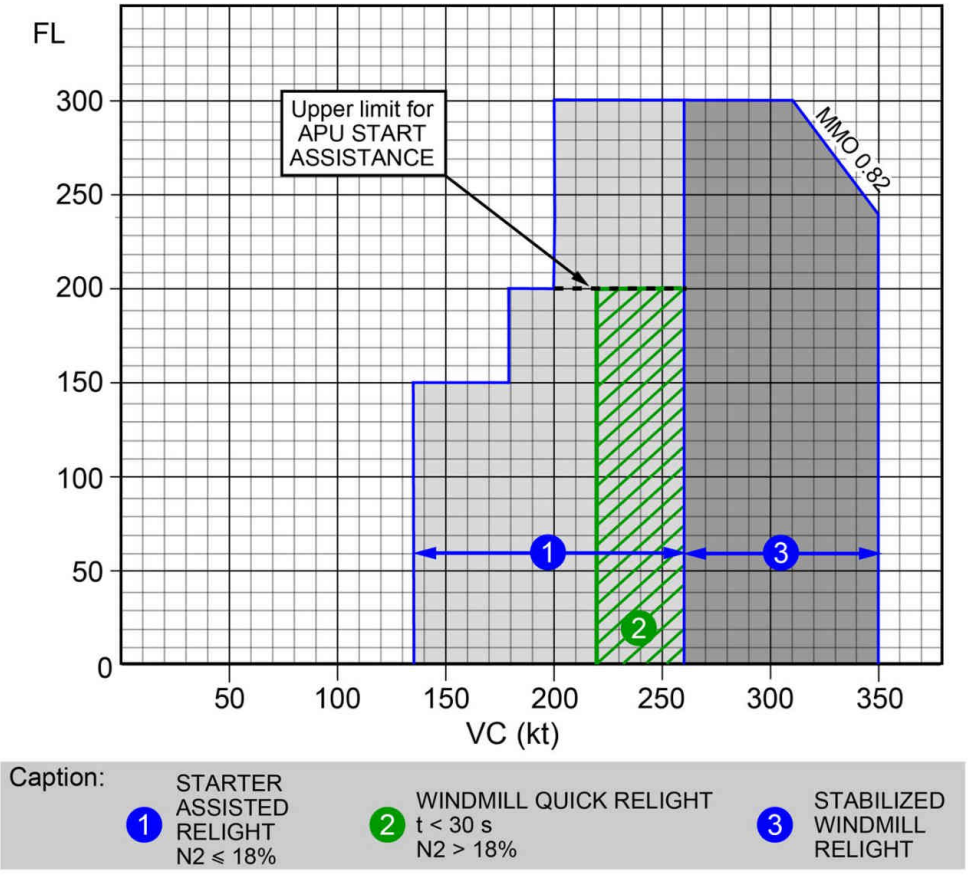
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**
THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**
ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**
ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**
THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**
Continue engine operation.

ENG TAILPIPE FIRE

4

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	76	74	71	68	64	61	58	54
5	76	74	71	68	64	61	56	52
10	76	74	71	68	64	59	54	
15	76	74	71	67	61	57	52	
20	76	74	69	64	59	54		
25	76	71	66	61	56			
30	73	68	64	59	54			
35	69	65	61	57	52			
40	66	62	59	55				
45	63	60	57					
50	60	57						
55	57							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

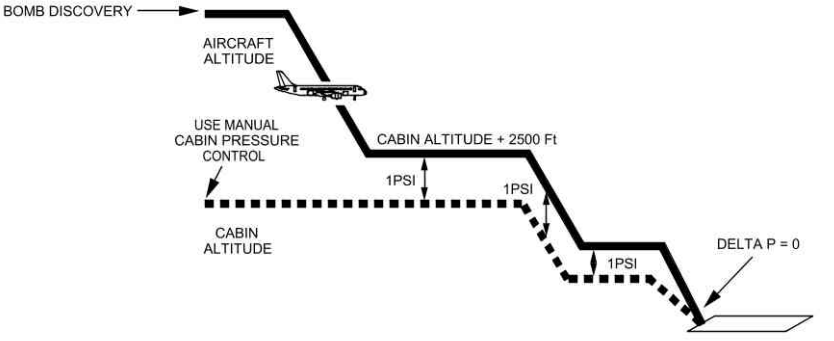
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB ON BOARD (Cont'd)

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL).....PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE.....POSITION

Note: A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB.....MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

BOMB ON BOARD (Cont'd)

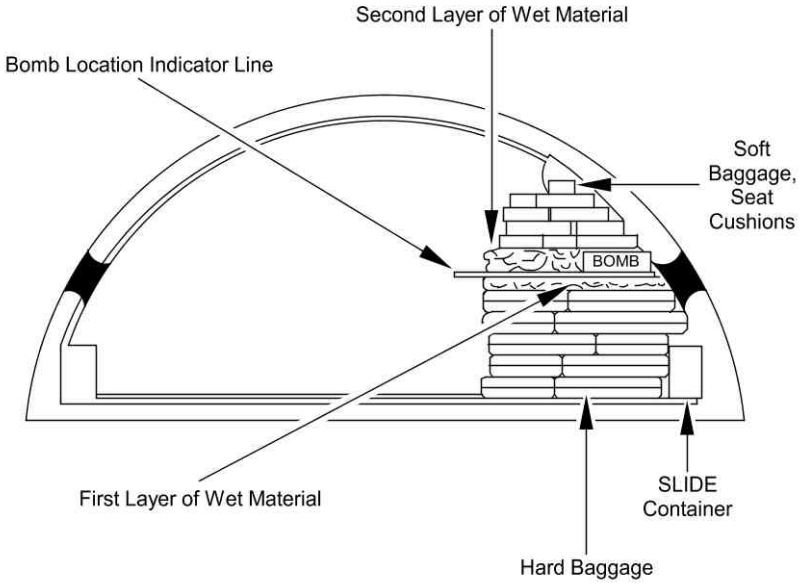
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF

GPWS TERR.....OFF

SIGNS.....ON

GALLEY.....OFF

LDG ELEV.....SELECT 00

BARO.....SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever.....UP

SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO

BLEED (ENGs and APU).....OFF

CABIN.....NOTIFY FOR DITCHING

DITCHING pushbutton.....ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.

In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF

APU MASTER SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY

FIRE pushbutton (ENG and APU).....PUSH

AGENTS (ENG and APU).....DISCH

EVACUATION.....INITIATE

FORCED LANDING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
GALLEY.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS..... MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

- **If Evacuation required:**

EVACUATION.....INITIATE

FORCED LANDING (Cont'd)

ELT ◁ ..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

EMER DESCENT

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: *The recommendation is to descend with the autopilot engaged.*
Use of the autopilot is also permitted in EXPEDITE mode ⩤ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: *Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.*

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: At very high weights, VFE CONF1 is close to VLS clean. To select CONF1, deselect A/THR, decelerate to (or slightly below) VLS and select CONF1 when below VFE. When established at CONF1, the crew can re-engage the A/THR and use managed speed again

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ⋘ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	92	88	82	76	70	65	60	55
15	92	88	82	76	70	65	60	55
20	92	88	82	76	70	65	60	55
25	92	87	80	75	69	64	59	
30	92	85	79	73	68			
35	88	82	76	70	65			
40	85	79	73	68				
45	82	75	70					
50	78	72						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK.....WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

2

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
ECON FLOW.....OFF

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to the QRH ABN 34 Unreliable Speed Indication / ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost, Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*

- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
  2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW
This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B..... PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

3 DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in wing tank	GALLEY (OFF)
	Fuel temp lower than -40 °C in wing tank	Consider descending to a lower altitude, and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁✻	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁✻
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G01 on 49VU, M06 on 121VU. G02 on 49VU, M07 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M06, M07, G01, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M07 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M06 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M07, G02 - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁⋘) of the FAP` in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
4 27	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING** Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING** Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
5 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING** Do not reset more than one computer at a time.
28	Loss of fuel quantity indication	FQIC	**On ground, or in flight:** - Pull the C/B of the affected channel: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) - Wait 5 s, before pushing the C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A321..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A321..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A321	1/2	1	**20 Sep 2012 : Modification of content of the element 20803157.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits:
    - AUTOLAND (HWC30 / TWC10 / XWC20)
    - MANUAL LAND - CAT II (HWC40 / TWC10 / XWC25)
    - OEI ROLLOUT (IDLE REV ONLY XWC15)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

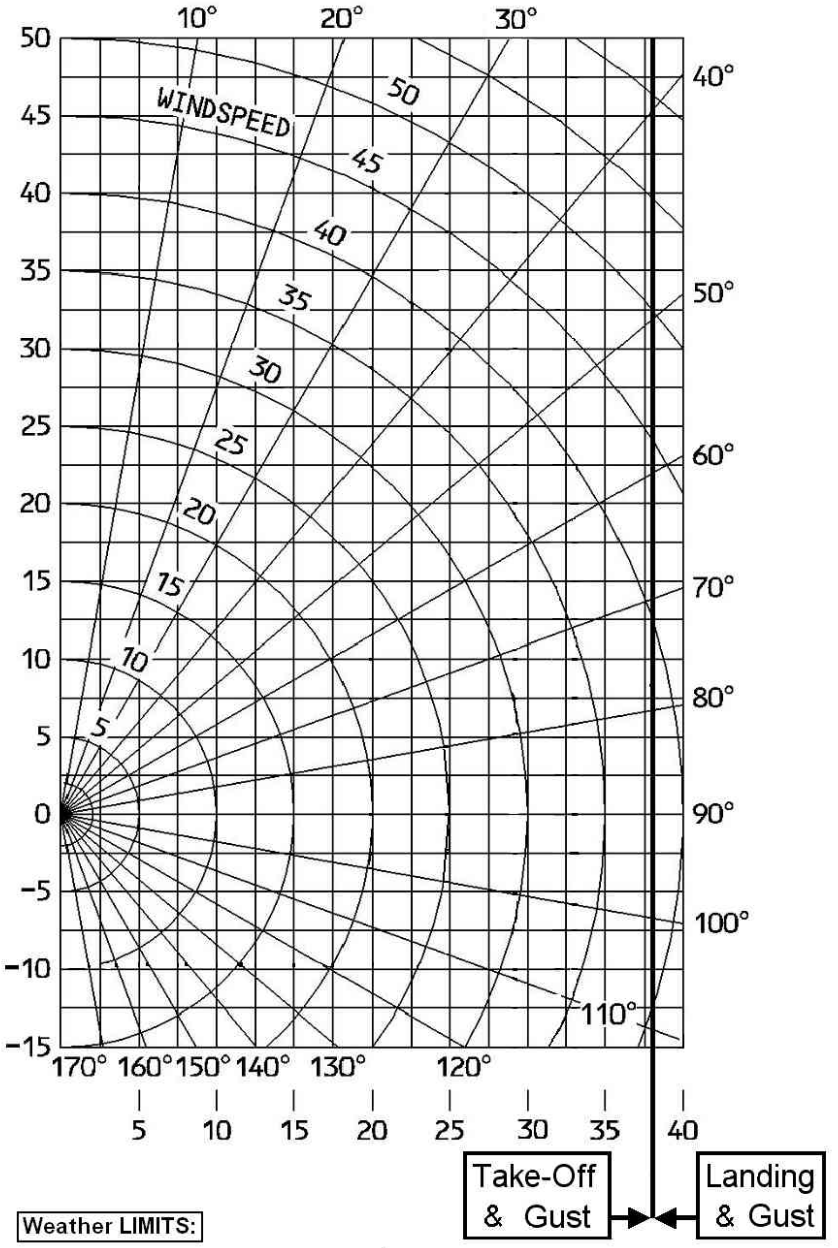
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A321



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind
15 knot x-wind limit for OEI Rollout with IDLE reverse only.

CAT II No Autoland
40 knots headwind
25 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A321

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)					
W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
52	130	168	188	121	116
56	135	174	194	125	121
60	140	180	200	130	125
64	144	186	206	134	129
68	149	192	212	138	133
72	153	197	218	142	137
76	157	203	224	146	141
80	161	208	230	150	144
84	165	213	236	154	148
88	169	218	242	157	151
92	173	223	248	161	155
94	175	226	251	163	157

(1) Above FL 200 add 1 kt per additional 1 000 ft.

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

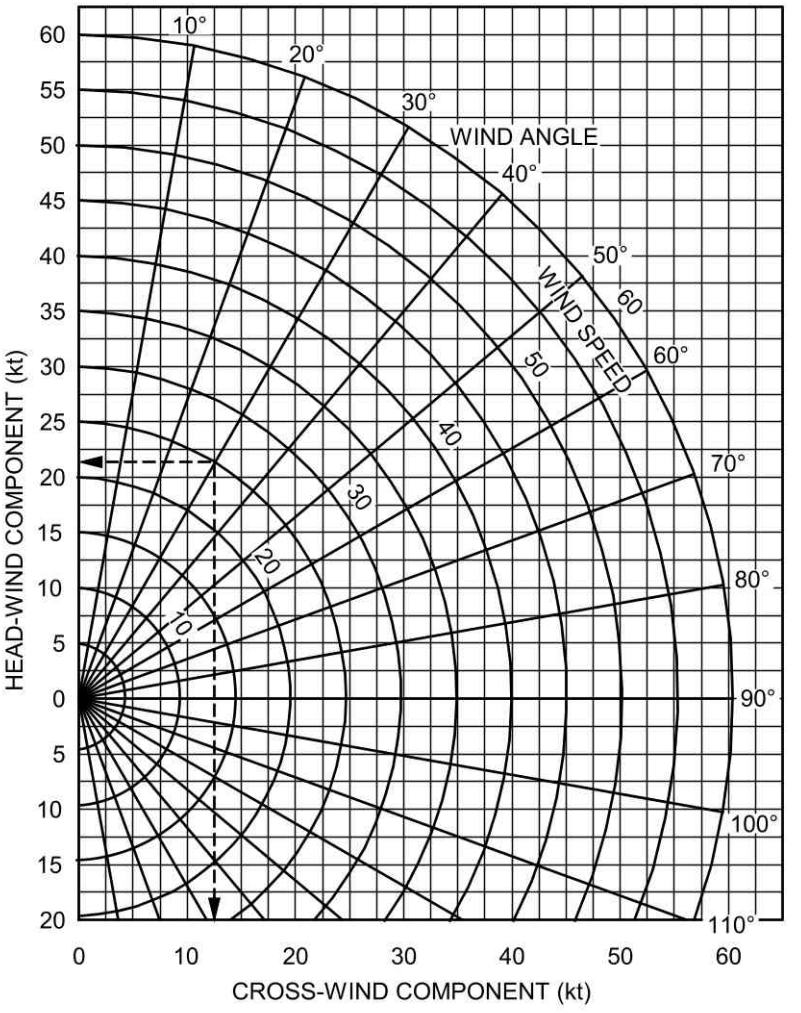
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VLS CONF FULL (kt) (=VREF)	116	119	123	127	131	135	139	143	146	150	153	157
VLS CONF3 (kt)	121	123	128	132	136	140	144	148	152	156	159	163

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 210**	- 10	+ 60	+ 80	+ 50	+ 140	+ 50	+ 30	- 20
AUTOBRAKE MED	**1 480**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 260 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 290**	- 10	+ 60	+ 80	+ 60	+ 160	+ 50	+ 30	- 30
AUTOBRAKE MED	**1 570**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 270 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 520**	- 10	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
AUTOBRAKE MED	**1 560**	- 10	+ 50	+ 110	+ 80	+ 210	+ 70	+ 60	- 20
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 650**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 690**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 40
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 420 m**
Autoland	**+ 330 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 730**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
AUTOBRAKE MED	**1 780**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
AUTOBRAKE LOW	**2 100**	- 20	+ 40	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 450 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 860**	- 10	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
AUTOBRAKE MED	**1 900**	- 10	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 120
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 90	+ 220	+ 80	+ 50	- 10

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 320 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 930**	- 10	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 130
AUTOBRAKE MED	**1 970**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 140
AUTOBRAKE LOW	**2 160**	- 20	+ 50	+ 140	+ 80	+ 230	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 430 m**
Autoland	**+ 320 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 070**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 110	- 150
AUTOBRAKE MED	**2 110**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 160
AUTOBRAKE LOW	**2 310**	- 20	+ 50	+ 140	+ 90	+ 240	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 330 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 210**	- 20	+ 70	+ 170	+ 130	+ 360	+ 120	+ 160	- 160
AUTOBRAKE MED	**2 240**	- 20	+ 70	+ 150	+ 130	+ 370	+ 110	+ 160	- 160
AUTOBRAKE LOW	**2 270**	- 20	+ 70	+ 150	+ 140	+ 370	+ 100	+ 170	- 50

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 390 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 430**	- 30	+ 80	+ 170	+ 150	+ 390	+ 130	+ 180	- 190
AUTOBRAKE MED	**2 460**	- 30	+ 80	+ 150	+ 150	+ 400	+ 120	+ 190	- 190
AUTOBRAKE LOW	**2 480**	- 30	+ 80	+ 170	+ 150	+ 390	+ 120	+ 190	- 70

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 410 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 430**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 440
AUTOBRAKE MED	**3 450**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 450
AUTOBRAKE LOW	**3 480**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 380 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 700**	- 30	+ 70	+ 160	+ 200	+ 580	+ 150	+ 850	- 490
AUTOBRAKE MED	**3 720**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 850	- 510
AUTOBRAKE LOW	**3 750**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 400 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VREF = VLS CONF FULL (kt)	116	119	123	127	131	135	139	143	146	150	153	157

+

ΔVREF
Refer to the applicable Landing Distance table

+

APPRoach CORrection	
ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP
VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)
• If APPR COR > 1/3 Headwind component: Correct the landing distance (**SPD** column) with **SPD = APPR COR** • If APPR COR = 1/3 Headwind component: No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC BUS 2 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 40
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 50
DC BUS 1+2 FAULT	FULL	0	**1 860**	- 20	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6	**2 020**	- 20	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 410**	- 10	+ 50	+ 80	+ 70	+ 170	+ 50	+ 30	- 30
	3	16	**1 490**	- 10	+ 60	+ 90	+ 70	+ 170	+ 50	+ 30	- 40
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 870**	- 10	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6 / 140kt	**2 030**	- 10	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 080**	- 10	+ 80	+ 110	+ 80	+ 210	+ 80	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 70
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 80
DC BUS 2 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 100
	3	6	**2 010**	- 20	+ 70	+ 180	+ 120	+ 280	+ 100	+ 110	- 120
DC BUS 1+2 FAULT	FULL	0	**2 010**	- 20	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6	**2 210**	- 30	+ 80	+ 180	+ 120	+ 300	+ 110	+ 140	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 670**	- 20	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 70
	3	6	**1 820**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 80	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 860**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 90
	3	16	**2 020**	- 20	+ 60	+ 140	+ 110	+ 250	+ 90	+ 80	- 110
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 020**	- 10	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 220**	- 20	+ 80	+ 170	+ 120	+ 300	+ 100	+ 140	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 300**	- 20	+ 80	+ 160	+ 130	+ 300	+ 100	+ 130	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 120
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
DC BUS 2 FAULT	FULL	0	**2 060**	- 20	+ 40	+ 130	+ 90	+ 220	+ 70	+ 110	- 160
	3	6	**2 230**	- 20	+ 40	+ 140	+ 90	+ 230	+ 80	+ 130	- 190
DC BUS 1+2 FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 240**	- 20	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 890**	- 10	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 030**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 070**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 150
	3	16	**2 220**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 170
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 070**	- 10	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6 / 140kt	**2 250**	- 10	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 310**	- 10	+ 60	+ 130	+ 100	+ 230	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
DC BUS 2 FAULT	FULL	0	**2 320**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 160	- 230
	3	6	**2 530**	- 20	+ 50	+ 150	+ 110	+ 270	+ 90	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 340**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 550**	- 20	+ 50	+ 160	+ 110	+ 270	+ 100	+ 190	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 140**	- 20	+ 40	+ 120	+ 90	+ 250	+ 70	+ 130	- 190
	3	6	**2 290**	- 20	+ 40	+ 130	+ 90	+ 250	+ 90	+ 150	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 330**	- 20	+ 40	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	16	**2 490**	- 20	+ 40	+ 120	+ 110	+ 250	+ 90	+ 150	- 240
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 340**	- 10	+ 50	+ 150	+ 100	+ 260	+ 90	+ 170	INOP
	3	6 / 140kt	**2 560**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 190	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 600**	- 10	+ 50	+ 150	+ 110	+ 270	+ 100	+ 180	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 210
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 240
DC BUS 2 FAULT	FULL	0	**2 770**	- 30	+ 90	+ 240	+ 190	+ 470	+ 170	+ 300	- 300
	3	6	**3 160**	- 40	+ 100	+ 260	+ 220	+ 540	+ 160	+ 380	- 390
DC BUS 1+2 FAULT	FULL	0	**2 810**	- 30	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6	**3 200**	- 40	+ 100	+ 270	+ 230	+ 560	+ 170	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 170	+ 440	+ 120	+ 220	- 250
	3	6	**2 770**	- 30	+ 80	+ 200	+ 180	+ 470	+ 140	+ 260	- 290
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 800**	- 30	+ 80	+ 180	+ 180	+ 450	+ 140	+ 250	- 290
	3	16	**3 060**	- 30	+ 80	+ 190	+ 190	+ 470	+ 150	+ 270	- 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 820**	- 10	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6 / 140kt	**3 210**	- 20	+ 100	+ 270	+ 230	+ 570	+ 170	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**3 260**	- 30	+ 100	+ 230	+ 220	+ 510	+ 170	+ 370	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 530
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 590
DC BUS 2 FAULT	FULL	0	**4 470**	- 30	+ 70	+ 220	+ 240	+ 710	+ 190	+ 1 550	- 990
	3	6	**4 980**	- 40	+ 80	+ 240	+ 270	+ 750	+ 200	+ 1 790	- 1 180
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**4 260**	- 30	+ 50	+ 180	+ 190	+ 730	+ 160	+ 2 020	- 1 170
	3	6	**4 570**	- 30	+ 50	+ 190	+ 210	+ 750	+ 180	+ 2 130	- 1 280
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**4 530**	- 30	+ 50	+ 180	+ 210	+ 740	+ 180	+ 2 010	- 1 220
	3	16	**4 860**	- 30	+ 50	+ 180	+ 220	+ 750	+ 190	+ 2 130	- 1 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 290**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 30
	3	6	**1 380**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 430**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
THREE SPLR FAULT	FULL	0	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 40
	3	6	**1 500**	- 10	+ 50	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
ALL SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
GND SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
SEC 1 or SEC 3 FAULT	FULL	0	**1 320**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 50	+ 100	+ 60	+ 150	+ 60	+ 40	- 30
SEC 2 FAULT	FULL	0	**1 270**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 350**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SEC 2+3 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
SEC 1+3 FAULT	FULL	0	**1 460**	- 10	+ 50	+ 110	+ 60	+ 150	+ 50	+ 40	- 50
	3	6	**1 550**	- 10	+ 50	+ 120	+ 70	+ 150	+ 60	+ 50	- 60
SEC 1+2 FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 450**	- 10	+ 50	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
RUDDER JAM	FULL	0	**1 430**	- 10	+ 60	+ 120	+ 90	+ 190	+ 60	+ 50	- 30
	3	6	**1 570**	- 10	+ 70	+ 120	+ 90	+ 200	+ 70	+ 50	- 40
SEC 1+2+3 FAULT	3	10	**1 700**	- 10	+ 50	+ 140	+ 70	+ 160	+ 70	+ 60	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 660**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
	3	6	**1 830**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 920**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 80	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 800**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 80
	3	6	**1 990**	- 20	+ 60	+ 160	+ 120	+ 270	+ 90	+ 100	- 100
THREE SPLR FAULT	FULL	0	**1 890**	- 20	+ 60	+ 170	+ 110	+ 270	+ 90	+ 100	- 90
	3	6	**2 090**	- 20	+ 70	+ 180	+ 130	+ 290	+ 100	+ 120	- 110
ALL SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
GND SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
SEC 1 or SEC 3 FAULT	FULL	0	**1 720**	- 20	+ 60	+ 140	+ 90	+ 240	+ 80	+ 80	- 70
	3	6	**1 870**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 80
SEC 2 FAULT	FULL	0	**1 620**	- 10	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 50
	3	6	**1 770**	- 20	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 70
SEC 2+3 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 100
SEC 1+3 FAULT	FULL	0	**1 990**	- 20	+ 70	+ 190	+ 120	+ 290	+ 100	+ 120	- 130
	3	6	**2 200**	- 20	+ 70	+ 210	+ 140	+ 310	+ 110	+ 150	- 160
SEC 1+2 FAULT	FULL	0	**1 810**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 90
	3	6	**1 960**	- 20	+ 60	+ 160	+ 110	+ 270	+ 100	+ 100	- 110
RUDDER JAM	FULL	0	**1 820**	- 20	+ 60	+ 140	+ 110	+ 270	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 160	+ 130	+ 290	+ 100	+ 110	- 100
SEC 1+2+3 FAULT	3	10	**2 500**	- 30	+ 80	+ 260	+ 160	+ 350	+ 140	+ 210	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 870**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 030**	- 20	+ 40	+ 110	+ 80	+ 200	+ 80	+ 100	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 110**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 020**	- 20	+ 40	+ 130	+ 80	+ 210	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 150
THREE SPLR FAULT	FULL	0	**2 120**	- 20	+ 40	+ 140	+ 90	+ 220	+ 80	+ 120	- 150
	3	6	**2 300**	- 20	+ 40	+ 150	+ 100	+ 230	+ 80	+ 130	- 170
ALL SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
GND SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
SEC 1 or SEC 3 FAULT	FULL	0	**1 940**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
	3	6	**2 080**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 830**	- 10	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 100
	3	6	**1 970**	- 20	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 110
SEC 2+3 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 130	+ 80	+ 210	+ 80	+ 110	- 130
	3	6	**2 220**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 220**	- 20	+ 40	+ 160	+ 100	+ 230	+ 80	+ 140	- 200
	3	6	**2 410**	- 20	+ 50	+ 160	+ 110	+ 240	+ 90	+ 160	- 230
SEC 1+2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 150
	3	6	**2 170**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 110	- 170
RUDDER JAM	FULL	0	**2 040**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 110	- 120
	3	6	**2 220**	- 20	+ 50	+ 130	+ 110	+ 250	+ 90	+ 130	- 150
SEC 1+2+3 FAULT	3	10	**2 690**	- 20	+ 50	+ 200	+ 120	+ 260	+ 110	+ 200	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 090**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 120	- 140
	3	6	**2 280**	- 20	+ 40	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 360**	- 20	+ 40	+ 120	+ 100	+ 240	+ 90	+ 140	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 270**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 180
	3	6	**2 470**	- 20	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 210
THREE SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 200
	3	6	**2 600**	- 20	+ 50	+ 160	+ 120	+ 270	+ 90	+ 190	- 230
ALL SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
GND SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
SEC 1 or SEC 3 FAULT	FULL	0	**2 180**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 330**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 180
SEC 2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 300**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 180
	3	6	**2 500**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 510**	- 20	+ 50	+ 170	+ 110	+ 270	+ 100	+ 200	- 260
	3	6	**2 730**	- 20	+ 50	+ 180	+ 130	+ 280	+ 100	+ 220	- 310
SEC 1+2 FAULT	FULL	0	**2 290**	- 20	+ 50	+ 140	+ 100	+ 250	+ 90	+ 150	- 210
	3	6	**2 440**	- 20	+ 50	+ 140	+ 110	+ 260	+ 90	+ 160	- 220
RUDDER JAM	FULL	0	**2 260**	- 20	+ 50	+ 130	+ 120	+ 280	+ 90	+ 150	- 170
	3	6	**2 470**	- 20	+ 60	+ 130	+ 130	+ 290	+ 90	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**3 060**	- 30	+ 60	+ 230	+ 140	+ 310	+ 120	+ 290	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 450**	- 30	+ 80	+ 160	+ 150	+ 400	+ 110	+ 190	- 170
	3	6	**2 760**	- 30	+ 80	+ 200	+ 170	+ 430	+ 150	+ 250	- 220
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 880**	- 30	+ 80	+ 180	+ 180	+ 440	+ 130	+ 260	- 240
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 690**	- 30	+ 90	+ 210	+ 170	+ 450	+ 150	+ 260	- 220
	3	6	**3 040**	- 30	+ 100	+ 240	+ 200	+ 480	+ 170	+ 340	- 280
THREE SPLR FAULT	FULL	0	**2 890**	- 30	+ 100	+ 260	+ 200	+ 480	+ 160	+ 320	- 260
	3	6	**3 250**	- 40	+ 100	+ 270	+ 230	+ 530	+ 180	+ 410	- 330
ALL SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
GND SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
SEC 1 or SEC 3 FAULT	FULL	0	**2 580**	- 30	+ 80	+ 190	+ 170	+ 430	+ 120	+ 230	- 200
	3	6	**2 810**	- 30	+ 80	+ 200	+ 180	+ 440	+ 150	+ 260	- 230
SEC 2 FAULT	FULL	0	**2 380**	- 30	+ 70	+ 170	+ 140	+ 380	+ 120	+ 180	- 160
	3	6	**2 620**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 220	- 200
SEC 2+3 FAULT	FULL	0	**2 740**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 230
	3	6	**3 110**	- 40	+ 100	+ 250	+ 210	+ 510	+ 160	+ 360	- 300
SEC 1+3 FAULT	FULL	0	**3 070**	- 40	+ 100	+ 280	+ 220	+ 520	+ 170	+ 400	- 360
	3	6	**3 470**	- 40	+ 110	+ 290	+ 260	+ 570	+ 170	+ 510	- 460
SEC 1+2 FAULT	FULL	0	**2 750**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 270
	3	6	**2 990**	- 30	+ 90	+ 220	+ 200	+ 480	+ 160	+ 310	- 310
RUDDER JAM	FULL	0	**2 550**	- 30	+ 90	+ 170	+ 180	+ 430	+ 120	+ 220	- 190
	3	6	**2 820**	- 30	+ 90	+ 190	+ 200	+ 460	+ 140	+ 270	- 240
SEC 1+2+3 FAULT	3	10	**4 000**	- 50	+ 130	+ 370	+ 310	+ 640	+ 230	+ 710	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 720**	- 30	+ 70	+ 170	+ 200	+ 590	+ 150	+ 880	- 500
	3	6	**4 150**	- 40	+ 80	+ 190	+ 220	+ 620	+ 180	+ 1 030	- 600
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**4 270**	- 40	+ 80	+ 180	+ 230	+ 630	+ 170	+ 1 040	- 610
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 120**	- 40	+ 80	+ 200	+ 230	+ 630	+ 170	+ 1 090	- 610
	3	6	**4 580**	- 40	+ 90	+ 230	+ 260	+ 660	+ 190	+ 1 260	- 720
THREE SPLR FAULT	FULL	0	**4 440**	- 40	+ 90	+ 230	+ 250	+ 660	+ 190	+ 1 280	- 700
	3	6	**4 900**	- 40	+ 90	+ 260	+ 280	+ 690	+ 210	+ 1 450	- 810
ALL SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
GND SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
SEC 1 or SEC 3 FAULT	FULL	0	**3 940**	- 30	+ 80	+ 190	+ 210	+ 610	+ 170	+ 990	- 560
	3	6	**4 220**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 060	- 610
SEC 2 FAULT	FULL	0	**3 640**	- 30	+ 70	+ 160	+ 190	+ 590	+ 150	+ 840	- 480
	3	6	**3 930**	- 30	+ 70	+ 170	+ 210	+ 600	+ 160	+ 920	- 540
SEC 2+3 FAULT	FULL	0	**4 220**	- 40	+ 80	+ 210	+ 240	+ 640	+ 170	+ 1 150	- 640
	3	6	**4 680**	- 40	+ 90	+ 240	+ 270	+ 670	+ 200	+ 1 320	- 750
SEC 1+3 FAULT	FULL	0	**4 710**	- 40	+ 90	+ 260	+ 270	+ 690	+ 200	+ 1 450	- 870
	3	6	**5 200**	- 50	+ 100	+ 280	+ 310	+ 720	+ 220	+ 1 660	- 1 030
SEC 1+2 FAULT	FULL	0	**4 240**	- 40	+ 80	+ 220	+ 240	+ 640	+ 180	+ 1 160	- 690
	3	6	**4 490**	- 40	+ 80	+ 210	+ 250	+ 660	+ 190	+ 1 210	- 740
RUDDER JAM	FULL	0	**3 740**	- 40	+ 90	+ 170	+ 230	+ 640	+ 160	+ 880	- 500
	3	6	**4 070**	- 40	+ 90	+ 190	+ 250	+ 660	+ 190	+ 970	- 560
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 160**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 60	- 40
FLAPS<1	SLATS<1	3	45	**2 060**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 50	- 40
	SLATS≥1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 730**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 40
	SLATS≥1	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 630**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 30
	SLATS≥1	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
FLAPS=3	SLATS<1	3	25	**1 600**	- 10	+ 60	N/A	+ 70	+ 170	+ 60	+ 30	- 30
	1≤SLATS≤3	3	10	**1 390**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 320**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	SLATS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS FAULT	FLAPS<1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
	1≤FLAPS<2	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
	2≤FLAPS<3	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
	FLAPS=3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	FLAPS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
SLATS FAULT	SLATS<1	3	25	**1 590**	- 10	+ 50	N/A	+ 70	+ 160	+ 60	+ 40	- 30
	1≤SLATS≤3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 330**	- 10	+ 50	+ 80	+ 60	+ 160	+ 50	+ 30	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 770**	- 30	+ 70	N/A	+ 160	+ 300	+ 130	+ 110	- 140
FLAPS<1	SLATS<1	3	45	**2 650**	- 20	+ 70	N/A	+ 150	+ 290	+ 130	+ 110	- 130
	SLATS≥1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 280**	- 20	+ 60	N/A	+ 130	+ 260	+ 100	+ 90	- 100
	SLATS≥1	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
2≤FLAPS<3	SLATS<1	3	25	**2 150**	- 20	+ 60	N/A	+ 120	+ 250	+ 100	+ 80	- 90
	SLATS≥1	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
FLAPS=3	SLATS<1	3	25	**2 100**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 810**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 760**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
	SLATS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
FLAPS FAULT	FLAPS<1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
	2≤FLAPS<3	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
	FLAPS=3	3	10	**1 800**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	FLAPS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
SLATS FAULT	SLATS<1	3	25	**2 090**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 80
	1≤SLATS≤3	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 800**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
FLAPS<1	SLATS<1	3	45	**2 710**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
	SLATS≥1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
1≤FLAPS<2	SLATS<1	3	30	**2 420**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 150
	SLATS≥1	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
2≤FLAPS<3	SLATS<1	3	25	**2 310**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	SLATS≥1	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
FLAPS=3	SLATS<1	3	25	**2 260**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 140
	1≤SLATS≤3	3	10	**2 010**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 120
	SLATS>3	3	5	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 110
FLAPS>3	1≤SLATS≤3	FULL	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
FLAPS FAULT	FLAPS<1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	1≤FLAPS<2	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
	2≤FLAPS<3	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS=3	3	10	**2 010**	- 20	+ 40	+ 90	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
SLATS FAULT	SLATS<1	3	25	**2 240**	- 20	+ 40	N/A	+ 90	+ 200	+ 70	+ 80	- 120
	1≤SLATS≤3	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 910**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 180**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 260
FLAPS<1	SLATS<1	3	45	**3 080**	- 20	+ 50	N/A	+ 120	+ 270	+ 110	+ 160	- 250
	SLATS≥1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
1≤FLAPS<2	SLATS<1	3	30	**2 730**	- 20	+ 40	N/A	+ 110	+ 250	+ 100	+ 150	- 220
	SLATS≥1	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
2≤FLAPS<3	SLATS<1	3	25	**2 600**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 200
	SLATS≥1	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
FLAPS=3	SLATS<1	3	25	**2 530**	- 20	+ 40	N/A	+ 100	+ 240	+ 90	+ 130	- 190
	1≤SLATS≤3	3	10	**2 260**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	SLATS>3	3	5	**2 160**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
FLAPS>3	1≤SLATS≤3	FULL	10	**2 200**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 120	- 150
	SLATS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
FLAPS FAULT	FLAPS<1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
	1≤FLAPS<2	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
	2≤FLAPS<3	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
	FLAPS=3	3	10	**2 250**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	FLAPS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
SLATS FAULT	SLATS<1	3	25	**2 490**	- 20	+ 40	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150
	SLATS>3	3	5	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 390**	- 40	+ 100	N/A	+ 270	+ 560	+ 230	+ 420	- 480
FLAPS<1	SLATS<1	3	45	**4 240**	- 40	+ 100	N/A	+ 270	+ 560	+ 210	+ 420	- 460
	SLATS≥1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
1≤FLAPS<2	SLATS<1	3	30	**3 520**	- 40	+ 90	N/A	+ 220	+ 500	+ 160	+ 320	- 340
	SLATS≥1	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
2≤FLAPS<3	SLATS<1	3	25	**3 270**	- 30	+ 80	N/A	+ 200	+ 460	+ 160	+ 280	- 300
	SLATS≥1	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
FLAPS=3	SLATS<1	3	25	**3 090**	- 30	+ 80	N/A	+ 180	+ 430	+ 150	+ 240	- 260
	1≤SLATS≤3	3	10	**2 710**	- 30	+ 80	+ 180	+ 160	+ 430	+ 140	+ 220	- 220
	SLATS>3	3	5	**2 580**	- 30	+ 70	+ 180	+ 160	+ 430	+ 120	+ 210	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 410	+ 130	+ 190	- 190
	SLATS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
FLAPS FAULT	FLAPS<1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
	1≤FLAPS<2	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
	2≤FLAPS<3	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
	FLAPS=3	3	10	**2 710**	- 30	+ 80	+ 170	+ 170	+ 430	+ 130	+ 220	- 220
	FLAPS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
SLATS FAULT	SLATS<1	3	25	**3 020**	- 30	+ 80	N/A	+ 170	+ 390	+ 140	+ 210	- 230
	1≤SLATS≤3	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190
	SLATS>3	3	5	**2 530**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 190	- 180

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
1≤FLAPS<2	SLATS<1	3	30	**5 410**	- 30	+ 50	N/A	+ 250	+ 770	+ 210	+ 2 230	- 1 060
	SLATS≥1	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
2≤FLAPS<3	SLATS<1	3	25	**5 080**	- 30	+ 50	N/A	+ 230	+ 750	+ 190	+ 2 100	- 980
	SLATS≥1	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
FLAPS=3	SLATS<1	3	25	**4 750**	- 30	+ 50	N/A	+ 210	+ 730	+ 190	+ 1 880	- 880
	1≤SLATS≤3	3	10	**4 380**	- 30	+ 50	+ 150	+ 200	+ 730	+ 170	+ 1 910	- 820
	SLATS>3	3	5	**4 240**	- 30	+ 50	+ 160	+ 190	+ 720	+ 160	+ 1 900	- 810
FLAPS>3	1≤SLATS≤3	FULL	10	**4 180**	- 20	+ 50	+ 150	+ 190	+ 710	+ 160	+ 1 750	- 760
	SLATS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
FLAPS FAULT	FLAPS<1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
	1≤FLAPS<2	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
	2≤FLAPS<3	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
	FLAPS=3	3	10	**4 370**	- 30	+ 50	+ 160	+ 200	+ 730	+ 170	+ 1 900	- 820
	FLAPS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
SLATS FAULT	SLATS<1	3	25	**4 270**	- 40	+ 70	N/A	+ 220	+ 600	+ 180	+ 860	- 550
	1≤SLATS≤3	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510
	SLATS>3	3	5	**3 790**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 500

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 390**	- 10	+ 50	+ 90	+ 50	+ 130	+ 50	+ 40	- 40
	3	6	**1 490**	- 10	+ 50	+ 90	+ 60	+ 140	+ 50	+ 40	- 50
B SYS LO PR	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
Y SYS LO PR	FULL	0	**1 320**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 890**	- 10	+ 50	N/A	+ 70	+ 150	+ 70	+ 60	- 80
G + Y	3	30	**2 690**	- 20	+ 60	N/A	+ 110	+ 210	+ 90	+ 130	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**1 530**	- 10	+ 60	+ 100	+ 60	+ 160	+ 60	+ 40	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 810**	- 20	+ 60	+ 140	+ 100	+ 250	+ 90	+ 90	- 90
	3	6	**2 010**	- 20	+ 60	+ 160	+ 120	+ 270	+ 100	+ 100	- 120
B SYS LO PR	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 60
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
Y SYS LO PR	FULL	0	**1 730**	- 20	+ 60	+ 140	+ 100	+ 240	+ 80	+ 80	- 70
	3	6	**1 880**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 30	+ 70	N/A	+ 160	+ 320	+ 120	+ 160	- 220
G + Y	3	30	**3 090**	- 30	+ 90	N/A	+ 180	+ 340	+ 140	+ 210	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 100**	- 10	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 150

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 950**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 690**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 140	- 230
G + Y	3	30	**3 020**	- 20	+ 60	N/A	+ 130	+ 250	+ 110	+ 180	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 300**	- 10	+ 40	+ 130	+ 100	+ 230	+ 80	+ 120	- 200

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 170
	3	6	**2 350**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 200
B SYS LO PR	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 140
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 160
Y SYS LO PR	FULL	0	**2 180**	- 20	+ 40	+ 130	+ 90	+ 240	+ 80	+ 130	- 170
	3	6	**2 340**	- 20	+ 40	+ 130	+ 100	+ 250	+ 90	+ 140	- 190
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 020**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 200	- 300
G + Y	3	30	**3 400**	- 30	+ 60	N/A	+ 150	+ 290	+ 120	+ 250	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 580**	- 10	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 160	+ 420	+ 120	+ 220	- 220
	3	6	**2 850**	- 30	+ 90	+ 230	+ 180	+ 440	+ 170	+ 270	- 280
B SYS LO PR	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 180
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 210
Y SYS LO PR	FULL	0	**2 580**	- 30	+ 80	+ 200	+ 170	+ 420	+ 130	+ 230	- 220
	3	6	**2 820**	- 30	+ 90	+ 200	+ 180	+ 440	+ 150	+ 270	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 850**	- 40	+ 110	N/A	+ 250	+ 530	+ 180	+ 420	- 490
G + Y	3	30	**4 380**	- 50	+ 120	N/A	+ 290	+ 560	+ 220	+ 550	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**3 180**	- 30	+ 100	+ 220	+ 210	+ 490	+ 180	+ 350	- 380

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 860**	- 30	+ 70	+ 180	+ 210	+ 610	+ 160	+ 950	- 550
	3	6	**4 310**	- 40	+ 80	+ 200	+ 240	+ 640	+ 180	+ 1 110	- 680
B SYS LO PR	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 520
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 570
Y SYS LO PR	FULL	0	**3 950**	- 30	+ 80	+ 190	+ 220	+ 610	+ 170	+ 990	- 430
	3	6	**4 230**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 070	- 490
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	30	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**4 700**	- 30	+ 90	+ 220	+ 260	+ 670	+ 200	+ 1 250	- 670

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 750**	- 20	+ 60	+ 100	+ 70	+ 190	+ 60	+ 70	- 60
	3	6	**1 880**	- 20	+ 70	+ 100	+ 70	+ 190	+ 70	+ 80	- 70
AUTO BRK FAULT	FULL	0	**1 320**	- 10	+ 50	+ 80	+ 50	+ 140	+ 40	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 80	+ 60	+ 150	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 800**	- 20	+ 60	+ 110	+ 80	+ 230	+ 70	+ 80	- 60
	3	6	**1 940**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 90	- 70
AUTO BRK FAULT	FULL	0	**1 680**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 70	- 60
	3	6	**1 840**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 790**	- 10	+ 60	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 70	+ 100	+ 80	+ 200	+ 70	+ 80	- 100
AUTO BRK FAULT	FULL	0	**1 790**	- 10	+ 30	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 230	+ 60	+ 100	- 120
	3	6	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 150**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 380	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 180
AUTO BRK FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 370	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 510**	- 30	+ 70	+ 160	+ 180	+ 570	+ 150	+ 780	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510
AUTO BRK FAULT	FULL	0	**3 520**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 510

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 170	+ 90	+ 220	+ 90	+ 30	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 450**	- 20	+ 50	+ 160	+ 100	+ 250	+ 90	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 190	- 50
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 160	+ 200	+ 600	+ 160	+ 870	- 460
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 890**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 40	- 40
	3	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 350**	- 10	+ 50	+ 90	+ 60	+ 150	+ 60	+ 30	- 30
	3	16	**1 450**	- 10	+ 50	+ 90	+ 70	+ 160	+ 60	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 480**	- 20	+ 70	N/A	+ 130	+ 260	+ 110	+ 90	- 130
	3	10	**1 780**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 70	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 740**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 60	- 70
	3	16	**1 900**	- 20	+ 60	+ 110	+ 100	+ 230	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 560**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 170
	3	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 920**	- 10	+ 40	+ 90	+ 80	+ 190	+ 60	+ 70	- 110
	3	16	**2 060**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 860**	- 20	+ 50	N/A	+ 110	+ 240	+ 100	+ 140	- 230
	3	10	**2 190**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 160
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 130**	- 20	+ 40	+ 100	+ 80	+ 220	+ 80	+ 100	- 150
	3	16	**2 290**	- 20	+ 40	+ 110	+ 90	+ 220	+ 80	+ 110	- 170

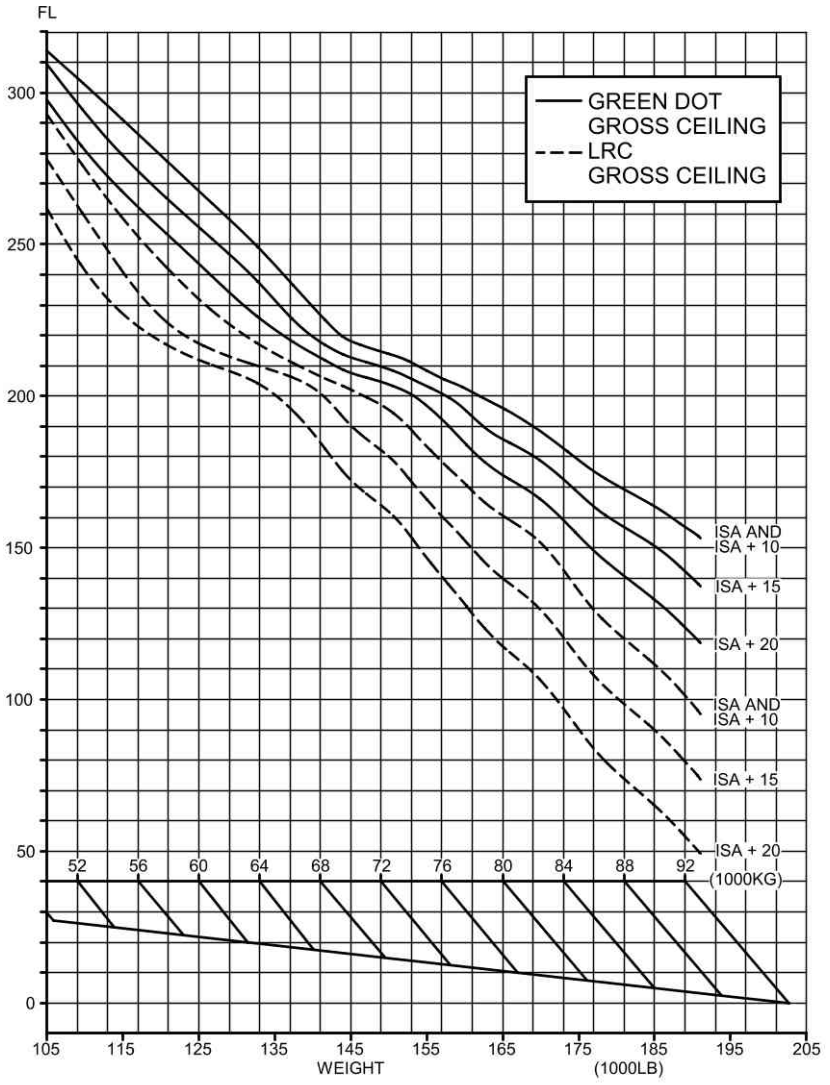
MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**3 690**	- 40	+ 90	N/A	+ 210	+ 450	+ 170	+ 280	- 400
	3	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 380	+ 140	+ 200	- 220
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 510**	- 30	+ 70	+ 160	+ 140	+ 360	+ 130	+ 170	- 200
	3	16	**2 770**	- 30	+ 80	+ 140	+ 160	+ 390	+ 120	+ 190	- 250

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**5 030**	- 50	+ 90	N/A	+ 230	+ 580	+ 190	+ 910	- 860
	3	10	**3 790**	- 40	+ 80	+ 160	+ 180	+ 530	+ 150	+ 720	- 600
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 630**	- 30	+ 80	+ 150	+ 170	+ 520	+ 150	+ 650	- 540
	3	16	**3 940**	- 40	+ 80	+ 150	+ 180	+ 530	+ 150	+ 720	- 620

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-1 300 ft	-1 400 ft	-1 400 ft
	TOTAL ANTI ICE ON	-2 800 ft	-2 800 ft	-2 800 ft	-3 000 ft
GREEN DOT	ENGINE ANTI ICE ON	-1 000 ft	-1 000 ft	-1 100 ft	-1 200 ft
	TOTAL ANTI ICE ON	-2 100 ft	-2 100 ft	-2 300 ft	-2 500 ft

Note: For weights 85 000 kg or 187 400 lb, one engine ceilings at Long Range speed may be overestimated by FMS Legacy. In this case, ceiling values provided in the above graph should be retained.

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL(1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50				174 32 198 .9 31700	228 42 200 1.1 31800	262 47 202 1.3 31900	288 52 204 1.3 31900
54			156 29 202 .9 30100	222 41 204 1.2 30200	258 47 206 1.4 30300	285 52 208 1.5 30300	308 55 210 1.5 30400
58		152 29 206 .9 28200	231 43 208 1.3 28500	269 50 210 1.5 28600	298 54 212 1.7 28600	320 58 214 1.7 28700	339 61 216 1.8 28700
62		236 45 212 1.5 26400	279 52 214 1.7 26600	309 57 216 1.8 26600	333 61 218 1.9 26700	352 64 220 2.0 26700	369 67 222 2.1 26800
66	155 30 214 1.1 24200	281 53 218 1.8 24600	314 59 220 2.0 24600	339 63 222 2.1 24700	360 67 224 2.2 24700	378 69 226 2.3 24800	393 71 228 2.3 24800
70	231 45 220 1.7 22600	311 59 224 2.1 22800	335 63 226 2.2 22800	357 67 228 2.3 22900	376 70 230 2.4 22900	392 72 232 2.5 22900	406 74 234 2.5 23000
74	214 41 226 1.6 21300	278 53 230 2.0 21400	301 56 232 2.1 21400	321 60 234 2.2 21500	339 62 236 2.2 21500	354 65 238 2.3 21500	
78	212 40 232 1.6 20500	264 49 236 1.9 20600	283 52 238 2.0 20600	301 55 240 2.1 20600	316 57 242 2.2 20600	330 60 244 2.2 20600	
82	242 46 238 1.9 19600	282 52 242 2.1 19700	298 55 244 2.2 19700	313 57 246 2.3 19700	326 59 248 2.3 19800		
86	278 52 244 2.3 18400	317 58 248 2.5 18400	332 61 250 2.6 18500	346 63 252 2.6 18500	359 65 254 2.7 18500		
90	300 56 250 2.6 17100	335 61 254 2.7 17200	349 64 256 2.8 17200	363 66 258 2.9 17200			
94	317 59 256 2.8 15900	350 64 260 3.0 15900	363 66 262 3.0 16000	375 67 264 3.1 16000			

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 15 %	+ 12 %	+ 18 %	- 200 FT
TOTAL ANTI ICE ON	+ 20 %	+ 24 %	+ 33 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.181 .442 1972 244	1.250 .480 1915 241	1.319 .507 1856 236	1.369 .530 1874 237	1.417 .549 1870 236	1.472 .571 1875 236
54	1.199 .454 2093 251	1.281 .494 2047 249	1.363 .529 2029 246	1.411 .548 2028 246	1.464 .569 2032 245	1.520 .588 2034 243
58	1.223 .466 2224 258	1.310 .506 2174 255	1.402 .546 2185 255	1.454 .567 2190 254	1.510 .587 2196 253	1.554 .591 2138 244
62	1.253 .484 2387 268	1.344 .521 2330 263	1.441 .562 2343 262	1.497 .583 2354 262	1.536 .585 2277 252	1.568 .551 2121 227
66	1.278 .495 2519 274	1.380 .538 2499 272	1.480 .578 2504 270	1.534 .595 2503 267	1.548 .548 2252 235	
70	1.303 .506 2651 280	1.412 .552 2651 278	1.517 .591 2667 277	1.547 .578 2519 260		
74	1.327 .515 2785 286	1.446 .567 2818 286	1.549 .600 2811 281	1.562 .528 2482 236		
78	1.359 .531 2968 295	1.478 .579 2979 293	1.557 .577 2795 270			
82	1.385 .543 3124 301	1.510 .592 3146 299	1.574 .523 2758 243			
86	1.412 .554 3282 308	1.519 .580 3163 293				
90	1.440 .567 3449 315	1.529 .559 3158 282				
94	1.456 .569 3540 316	1.549 .512 3139 258				
ENGINE ANTI ICE ON △FUEL = + 2 %				TOTAL ANTI ICE ON △FUEL = + 4 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1510 0.46	1317 0.44	1180 0.42	1131 0.41	1083 0.41	1061 0.41	9	7	6
300	2259 1.06	2008 1.03	1826 0.59	1762 0.58	1699 0.57	1670 0.58	15	14	13
400	3004 1.27	2694 1.22	2468 1.17	2388 1.15	2312 1.14	2276 1.15	21	20	20
500	3745 1.47	3377 1.41	3106 1.34	3010 1.32	2921 1.31	2877 1.32	27	27	27
600	4481 2.08	4055 2.00	3739 1.52	3628 1.49	3527 1.48	3475 1.49	34	34	34
700	5212 2.28	4729 2.19	4369 2.10	4241 2.07	4129 2.04	4069 2.05	40	40	41
800	5938 2.49	5400 2.39	4994 2.28	4851 2.24	4727 2.21	4659 2.22	46	47	48
900	6659 3.10	6066 2.58	5615 2.46	5456 2.41	5320 2.38	5247 2.38	52	53	54
1000	7376 3.31	6728 3.17	6232 3.04	6058 2.59	5907 2.55	5831 2.55	58	60	61
1100	8088 3.52	7387 3.37	6845 3.22	6656 3.16	6490 3.12	6413 3.11	63	66	68
1200	8798 4.13	8042 3.56	7454 3.41	7250 3.34	7070 3.29	6991 3.28	69	73	74
1300	9506 4.34	8693 4.16	8059 3.59	7840 3.52	7645 3.46	7566 3.44	75	79	81
1400	10209 4.55	9340 4.36	8661 4.17	8427 4.10	8217 4.03	8137 4.00	81	86	87

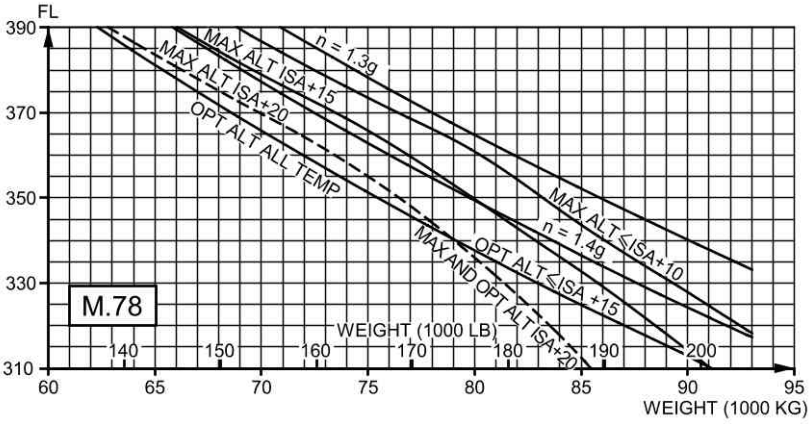
ENGINE ANTI ICE ON
△FUEL = + 2 %

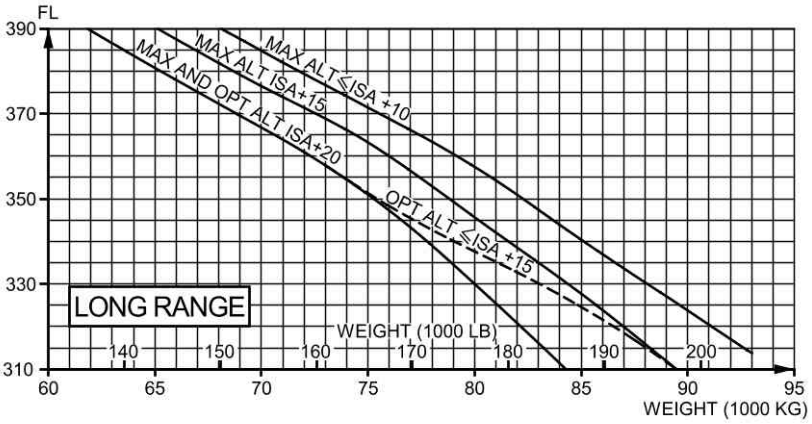
TOTAL ANTI ICE ON
△FUEL = + 4 %

FLIP23 A321-131 IAE V2530-A5 3610 03301.001011 0250300 .7801 .000100 140 0300350 60 0 100100 40100 18590 CL-N0-04-07-150

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES





CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 500 ft Opt ALT :- 300 ft	Max ALT : -1 100 ft Opt ALT : - 300 ft
ISA +15	Max ALT : - 700 ft Opt ALT : - 300 ft	Max ALT : -1 500 ft Opt ALT : - 600 ft
ISA +20	Max ALT : -1 000 ft Opt ALT : -1 000 ft	Max ALT : -2 300 ft Opt ALT : -2 300 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 – DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 65000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	1037 0.36	978 0.36	926 0.36	880 0.36	842 0.36	816 0.36	1	2	4
400	2281 1.02	2158 1.02	2049 1.02	1956 1.03	1885 1.03	1854 1.03	7	10	20
600	3518 1.27	3329 1.28	3164 1.29	3023 1.29	2918 1.30	2875 1.30	13	18	33
800	4747 1.53	4494 1.54	4271 1.55	4081 1.56	3939 1.56	3882 1.56	19	25	45
1000	5970 2.19	5650 2.20	5370 2.22	5131 2.23	4951 2.23	4874 2.23	25	33	57
1200	7185 2.45	6799 2.47	6461 2.48	6171 2.49	5952 2.50	5852 2.50	31	40	67
1400	8393 3.11	7941 3.13	7544 3.14	7204 3.16	6944 3.17	6816 3.17	36	47	77
1600	9596 3.37	9076 3.39	8620 3.41	8228 3.43	7925 3.44	7768 3.44	41	54	86
1800	10792 4.03	10205 4.05	9689 4.07	9244 4.09	8898 4.10	8707 4.10	46	60	94
2000	11983 4.29	11327 4.31	10751 4.34	10254 4.36	9865 4.37	9640 4.37	51	66	102
2200	13167 4.55	12442 4.58	11806 5.00	11256 5.03	10825 5.04	10566 5.04	56	73	110
2400	14345 5.21	13551 5.24	12855 5.26	12251 5.29	11776 5.31	11482 5.31	61	79	117
2600	15518 5.47	14654 5.50	13897 5.53	13239 5.56	12720 5.58	12388 5.58	65	85	125
2800	16685 6.13	15750 6.16	14932 6.19	14220 6.23	13657 6.24	13286 6.24	68	90	131
3000	17851 6.39	16841 6.42	15961 6.46	15195 6.49	14586 6.51	14175 6.51	72	96	138

ECON AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.6 %	△FUEL = + 2 %	△FUEL = + 5 %

FLIP22B A321-131 IAE V2530-A5&3610 03301.300211 0250300 .7800 .000200 140 0300350 65 0 100100 40100 18590 CL-N0-CL-004-009-150

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 50 kg/min in the FMGC.

  or
- CI_{LRC} = 70 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	60				80				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.7	173	100	IDLE					241
370	15.9	166	95	IDLE	18.0	186	108	IDLE	252
350	15.2	159	90	IDLE	17.3	179	103	IDLE	264
330	14.6	153	85	IDLE	16.6	173	98	IDLE	277
310	14.0	148	81	IDLE	16.0	167	93	IDLE	289
290	13.5	143	76	IDLE	15.3	161	88	IDLE	300
270	12.8	137	71	IDLE	14.5	154	81	IDLE	300
250	12.1	131	66	IDLE	13.6	146	75	IDLE	300
240	11.7	127	63	IDLE	13.2	143	72	IDLE	300
220	11.0	121	58	IDLE	12.3	135	66	IDLE	300
200	10.2	114	53	IDLE	11.5	127	60	IDLE	300
180	9.5	108	48	IDLE	10.5	119	54	IDLE	300
160	8.7	100	43	IDLE	9.6	110	48	IDLE	300
140	7.9	93	39	IDLE	8.7	101	42	IDLE	300
120	7.1	85	34	IDLE	7.7	92	37	IDLE	300
100	6.3	76	29	IDLE	6.7	81	31	IDLE	300
50	2.4	30	10	IDLE	2.5	32	11	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	ECON AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 1 min	+ 3 min	+ 0.2 %
FUEL	– 2 %	+ 17 %	+ 90 %	+ 0.7 %
DISTANCE	–	+ 4 %	+ 20 %	+ 0.4 %

10B-08FA321-131IAEV2530-A523100000C5KG330001859000-1-350.015.0.00003.780300.000250.0000 FCOM-N0-03-05-30-002-150

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 120 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 100 KG (4MIN)

REF. LDG WT AT DEST. = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	601 0.12						2		
60	775 0.16						4		
80	950 0.20	898 0.19					5		
100	1124 0.23	1056 0.23	1035 0.22				6	6	
120	1299 0.27	1213 0.26	1172 0.26	1172 0.25			7	7	
140	1474 0.31	1371 0.30	1310 0.29	1294 0.28			8	8	
160	1649 0.35	1529 0.33	1447 0.32	1416 0.31	1423 0.31		9	8	10
180	1825 0.39	1687 0.37	1585 0.35	1539 0.35	1536 0.34	1547 0.33	10	9	12
200	2000 0.43	1845 0.40	1723 0.38	1662 0.38	1650 0.36	1654 0.36	11	10	13
220	2176 0.46	2003 0.44	1860 0.42	1784 0.41	1763 0.39	1761 0.39	12	10	14
240	2352 0.50	2161 0.47	1998 0.45	1907 0.44	1877 0.42	1869 0.41	13	11	15
260	2529 0.54	2320 0.50	2136 0.48	2030 0.47	1991 0.45	1976 0.44	15	12	16
280	2705 0.58	2479 0.54	2274 0.51	2153 0.50	2105 0.48	2084 0.47	16	13	17
300	2882 1.02	2638 0.57	2413 0.54	2277 0.53	2220 0.51	2192 0.50	17	13	18
320	3059 1.05	2797 1.01	2551 0.58	2400 0.57	2334 0.54	2300 0.53	18	14	20
340	3236 1.09	2956 1.04	2689 1.01	2524 1.00	2449 0.57	2408 0.55	19	15	21
360	3414 1.13	3115 1.07	2828 1.04	2647 1.03	2563 1.00	2516 0.58	20	16	22
380	3591 1.17	3275 1.11	2966 1.07	2771 1.06	2678 1.03	2625 1.01	21	16	23
400	3769 1.21	3435 1.14	3105 1.10	2895 1.09	2793 1.06	2733 1.04	22	17	24
420	3947 1.24	3594 1.18	3243 1.14	3019 1.12	2908 1.09	2842 1.06	23	18	25
440	4125 1.28	3754 1.21	3382 1.17	3143 1.15	3023 1.12	2951 1.09	25	19	26
460	4304 1.32	3915 1.24	3521 1.20	3267 1.18	3138 1.15	3060 1.12	26	20	27
480	4482 1.35	4075 1.28	3660 1.23	3392 1.21	3253 1.18	3169 1.15	27	20	28
500	4661 1.39	4235 1.31	3799 1.26	3516 1.25	3369 1.21	3278 1.18	28	21	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 4 %	△FUEL = + 6 %

CL-N0-04-13-155

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 140 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

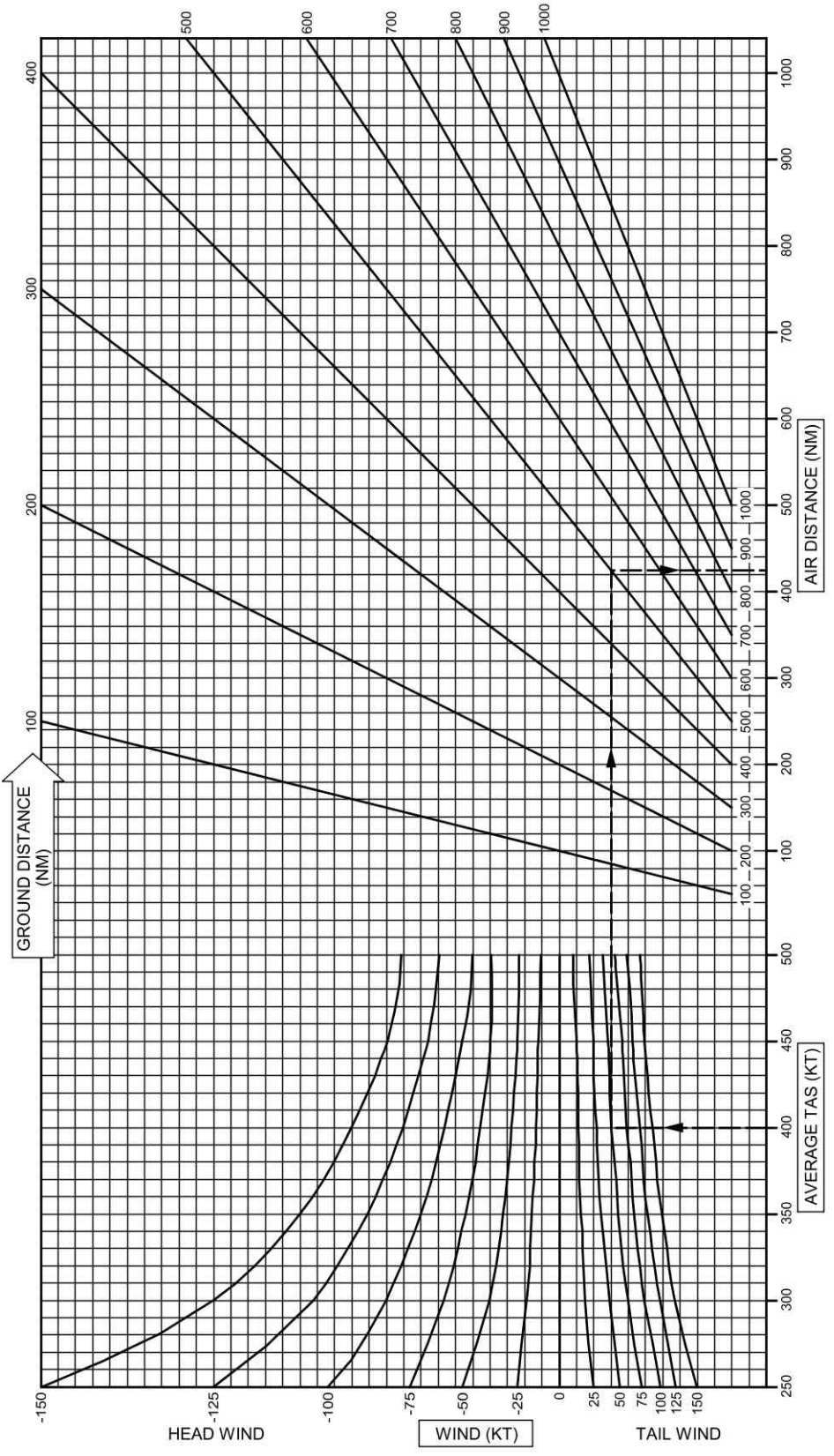
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	65	70	75	80	85	90	95
40	337 0.15	339 0.15	342 0.15	347 0.15	353 0.15	361 0.15	370 0.15
60	515 0.18	523 0.18	531 0.18	540 0.18	551 0.18	561 0.18	571 0.18
80	693 0.22	706 0.22	719 0.21	733 0.21	748 0.21	761 0.21	773 0.21
100	871 0.26	890 0.25	908 0.25	926 0.24	945 0.24	960 0.24	975 0.24
120	1048 0.30	1073 0.29	1096 0.28	1119 0.28	1141 0.27	1160 0.27	1176 0.27
140	1226 0.33	1256 0.32	1284 0.31	1312 0.31	1338 0.30	1359 0.30	1378 0.30
160	1403 0.37	1438 0.36	1472 0.35	1504 0.34	1534 0.33	1559 0.33	1580 0.33
180	1580 0.41	1621 0.39	1659 0.38	1696 0.37	1731 0.36	1758 0.36	1782 0.36
200	1757 0.45	1803 0.43	1846 0.42	1888 0.41	1927 0.39	1957 0.39	1984 0.39
220	1933 0.48	1985 0.46	2034 0.45	2080 0.44	2123 0.43	2156 0.42	2185 0.42
240	2110 0.52	2167 0.50	2221 0.48	2271 0.47	2319 0.46	2355 0.45	2387 0.45
260	2286 0.56	2349 0.53	2407 0.52	2463 0.51	2515 0.49	2554 0.48	2589 0.48
280	2462 1.00	2530 0.57	2594 0.55	2654 0.54	2710 0.52	2753 0.51	2791 0.51
300	2637 1.04	2711 1.00	2780 0.58	2845 0.57	2906 0.55	2952 0.54	2993 0.54
320	2813 1.07	2892 1.04	2967 1.02	3036 1.00	3101 0.59	3150 0.57	3195 0.57
340	2988 1.11	3073 1.07	3153 1.05	3227 1.04	3296 1.02	3349 1.00	3397 1.00
360	3164 1.15	3254 1.11	3339 1.09	3417 1.07	3491 1.05	3547 1.03	3599 1.03
380	3339 1.19	3434 1.15	3524 1.12	3608 1.10	3686 1.08	3745 1.05	3800 1.05
400	3513 1.23	3615 1.18	3710 1.15	3798 1.14	3881 1.12	3943 1.08	4001 1.08
420	3688 1.26	3795 1.22	3895 1.19	3988 1.17	4076 1.15	4141 1.11	4202 1.11
440	3862 1.30	3975 1.25	4080 1.22	4177 1.20	4270 1.18	4339 1.14	4402 1.14
460	4037 1.34	4154 1.29	4265 1.26	4367 1.24	4465 1.22	4537 1.17	4603 1.17
480	4211 1.38	4334 1.33	4450 1.29	4557 1.27	4659 1.25	4735 1.20	4803 1.20
500	4384 1.42	4513 1.36	4635 1.33	4746 1.30	4853 1.28	4932 1.23	5003 1.23
520	4558 1.46	4692 1.40	4819 1.36	4935 1.34	5047 1.32	5130 1.26	5203 1.26
540	4732 1.49	4871 1.43	5003 1.40	5124 1.37	5241 1.35	5327 1.29	5403 1.29

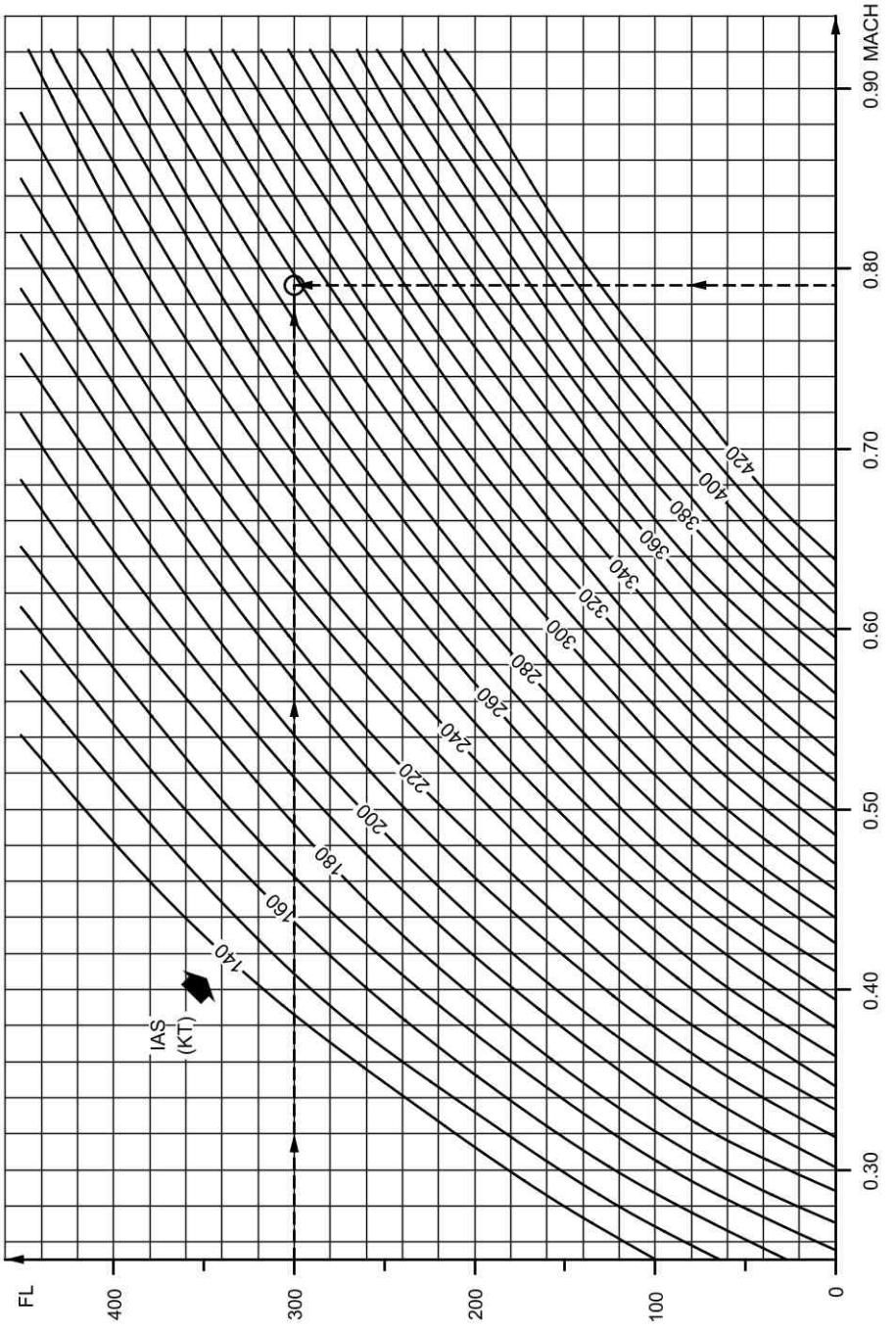
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = − 2 %	△FUEL = + 3 %	△FUEL = + 5 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

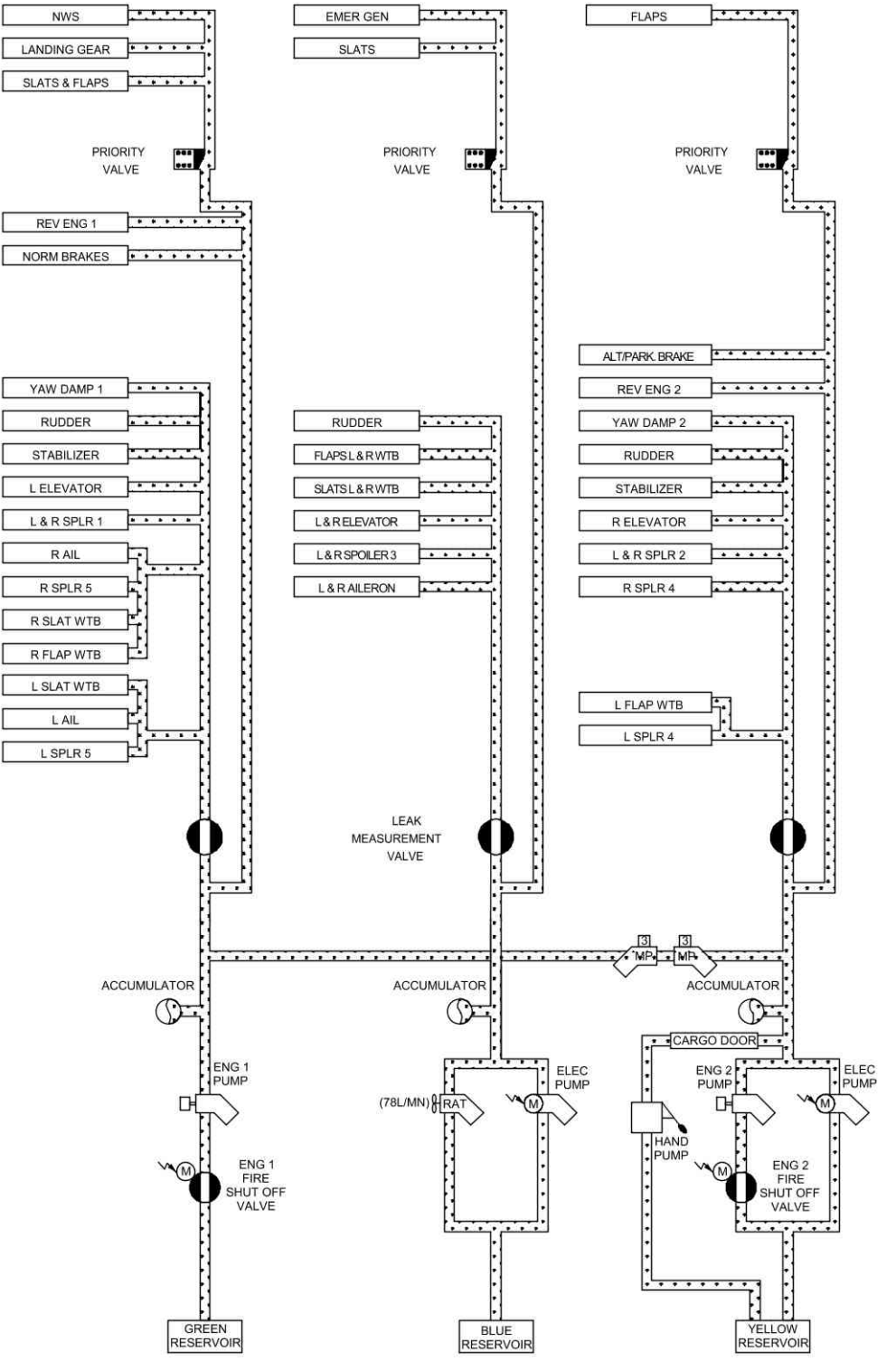
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)										
		54	58	62	66	70	74	78	82	86	90	94
		N1 %										
390	0.76	79.4	80.6	-	-	-	-	-	-	-	-	-
370	0.76	77.9	78.9	80.0	81.2	-	-	-	-	-	-	-
350	0.76	77.2	77.9	78.8	79.7	80.7	-	-	-	-	-	-
330	0.76	76.9	77.6	78.2	79.0	79.8	80.7	81.6	-	-	-	-
310	0.76	76.7	77.3	77.9	78.5	79.2	79.9	80.6	81.5	82.4	-	-
290	0.76	76.7	77.2	77.7	78.2	78.8	79.4	80.0	80.6	81.4	82.1	83.0
270	300	76.2	76.6	77.0	77.5	78.0	78.5	79.1	79.6	80.3	80.9	81.6
250	300	75.0	75.4	75.8	76.2	76.7	77.1	77.7	78.2	78.9	79.5	80.2
200	300	72.2	72.5	72.9	73.3	73.7	74.2	74.7	75.2	75.8	76.4	77.0
150	270	65.5	65.9	66.5	67.0	67.7	68.4	69.2	70.3	71.0	71.8	72.6
100	270	62.5	62.9	63.5	64.0	64.6	65.3	66.0	66.8	67.6	68.4	69.2
50	270	59.1	59.5	60.0	60.5	61.1	61.8	62.6	63.4	64.2	65.0	65.7

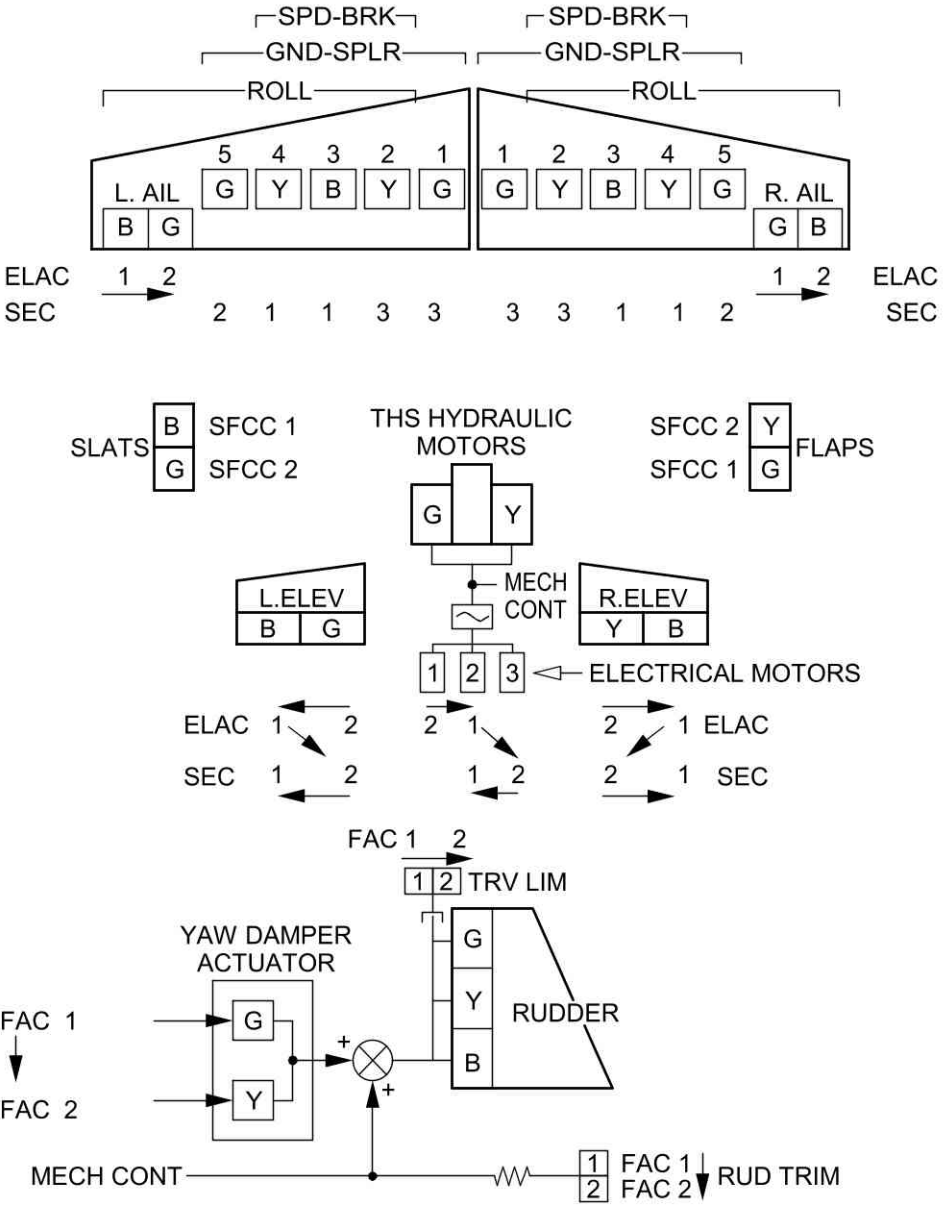
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note:
- *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-30 No SRS Engagement During Go Around Below MDA

No SRS Engagement During Go Around Below MDA..... 30.00
No SRS Engagement During Go Around Below MDA..... 30.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Intentionally left blank

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTF**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTF**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB30 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 188.
One Operator reported a case where the flight crew initiated a Go Around slightly below the Minimum Descent Altitude (MDA), and the aircraft did not pitch up as expected. The flight crew performed a non precision approach (a VORDME approach) using the FINAL APP managed guidance mode with the AP1 (Autopilot) engaged during the final approach.
This OEB is issued to provide flight crews with an operational procedure to avoid such aircraft behavior.
The operational procedure provided in this OEB applies to all Non Precision Approaches, for both conventional approaches and RNAV approaches, flown in FINAL APP managed guidance mode.

Applicable to: All A318/A319/A320/A321 aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013526.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				
	OEBPROC-30		**No SRS Engagement During Go Around Below MDA**	00013527.0002001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				

NO SRS ENGAGEMENT DURING GO AROUND BELOW MDA

ECAM ENTRY

None

PROCEDURE

During a non precision approach, when using the FINAL APP managed guidance mode:

- **At DA(DH) or MDA(MDH), or earlier in approach if visual conditions are obtained:**

  DISENGAGE the FINAL APP mode by pressing the APPR pushbutton on the FCU.

When the flight crew presses the APPR pb in order to disengage the FINAL APP managed guidance mode, a basic vertical guidance mode, either V/S or FPA, engages.

This ensures that the SRS and GA TRK guidance modes correctly engage, if the flight crew initiates a go-around slightly below MDA (MDH).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTF**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTF**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTF**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTF**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTF**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HTG

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HTG**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HTG**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HTG**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HTG**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTG**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HTG**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HTG**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HTG**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTG** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	1695	HDA 0104	B-HTG	321-231

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	K2113		30 AUG 10	FUSELAGE - REAR FUSELAGE SECTION 16A - DEFINE A321 BASIC STRUCTURE
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	32-1361 00		30 MAY 12	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU L4.9B (EM2) FROM STD BSCU STD 10 OR 10.1 (PRE EM2).
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P3341		30 AUG 10	LANDING GEAR - WHEELS AND BRAKES - INSTALL MESSIER GOODRICH WHEELS AND BRAKES ON A321
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	J2153		30 AUG 10	FUEL-CERTIFICATION OF FUEL SYSTEM- (LOW PRESSURE SYSTEM) FOR THE OPERATION 0 TO 2 ACTS
	Applicable to: ALL			
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	32-1369 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INTRODUCE BSCU STD 10.1 - SB ONLY.
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0070		30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K7727		30 AUG 10	EQUIPMENT/FURNISHINGS - MISCELLANEOUS EMERGENCY EQPT - INSTALL AN HONEYWELL ELT WITH CONTROL PANEL IN COCKPIT
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF..... 27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03
ACT UNUSABLE PROC..... 28.06

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

ABN-32 Landing Gear

LOSS OF BRAKING 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
EGPWS ALERTS 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
TCAS WARNINGS 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

ENG DUAL FAILURE - FUEL REMAINING 70.01
ENG DUAL FAILURE - NO FUEL REMAINING 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
Ditching 80.03
Forced Landing 80.04
EMER Descent 80.05
OVERWEIGHT LANDING..... 80.06
Stall Recovery 80.07
Stall Warning at Lift-Off 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
11 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	Add of HF 1
			The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	1	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	4	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	9	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG RELIGHT (in flight)	70.03	1	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	2	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.

Localization Title	Page	ID	Reason
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
	AFT CRG ISOL VALVE	Norm	Inop	Inop
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
HYD	FIRE VALVES	Norm	Norm	Norm
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK USABLE BY GRAVITY: 2 t (4 400 lb) UNUSABLE
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3 - **When L/G uplocked:**
ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

● **If fuel vapors:**

CAB FANS.....ON
PACK 1+2..... OFF

● **If no fuel vapors:**

CAB FANS.....OFF
ECON FLOW..... OFF

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

● **At FL 100 or MEA**

APU MASTER SW (if in ELEC EMER CONF).....ON
PACK 1+2.....OFF
MODE SEL.....MAN
MAN V/S CTL..... FULL UP
RAM AIR.....ON
APU MASTER SW.....OFF

● **If smoke persists, open CKPT window:**

MAX SPEED.....200 KT
COCKPIT DOOR.....OPEN
HEADSETS.....ON
PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

- **If smoke continues:**

PACK 1.....ON
PACK 2.....OFF

- **If smoke still continues:**

PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

- **If smoke continues:**

EMER EXIT LIGHT.....ON
COMMERCIAL.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

- **If smoke still continues or if faulty equipment confirmed isolated:**

COMMERCIAL.....NORM

SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION..... RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR..... MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2..... OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2..... ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">215 kt</td><td rowspan="3">195 kt</td><td>190 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">190 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">215 kt</td><td>215 kt</td><td>195 kt</td><td>190 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">190 kt</td><td>190 kt</td><td>190 kt</td><td>190 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON
CTR TK L+R XFR..... OFF

- **On the lighter side:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS..... ON
  CTR TK L+R XFR.....ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- A tank is overflowing (due to pipe rupture in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD
If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each wing tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED
The crossfeed valve must remain closed to prevent the leak from affecting both sides.
CTR TK L+R XFR..... OFF
Each engine is fed via its associated wing tank only.
WING TANK FUEL QUANTITIES..... MONITOR
Monitor the depletion rate of each wing tank.

■ CASE 1 : IF ONE WING TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the wing tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  CTR TK L+R XFR..... ON
  FUEL X FEED..... USE AS RQRD
  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The wing tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER
CTR TK XFR (non-leaking side).....ON

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2 : IF BOTH WING TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**
  APU (if ON).....OFF
  This prevents additional fuel loss through the APU feeding line.
- **When fuel quantity in one wing tank is less than 3 t (6 600 lb):**
  CTR TK L+R XFR..... ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

Intentionally left blank

Intentionally left blank

ACT UNUSABLE PROC

ACT..... AUTO

This stops the pump dry running.

Intentionally left blank

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

1

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	F	4.0 / 70.7	4.0 / 66.4	4.0 / 61.5
2	F	7.0 / 68.9	7.0 / 64.6	7.0 / 59.9
1 + F	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
1	S	7.5 / 65.5	7.5 / 61.4	7.5 / 56.5
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

4 ## WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	270 kt	8.5 / CLB	9.0 / CLB	10.0 / CLB
FL 50 - FL 100		8.0 / CLB	8.0 / CLB	9.0 / CLB
FL 100 - FL 150		7.0 / CLB	7.0 / CLB	8.0 / CLB
FL 150 - FL 200		6.0 / CLB	6.0 / CLB	6.5 / CLB
FL 200 - FL 250	300 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
FL 250 - FL 280		3.5 / CLB	3.0 / CLB	3.0 / CLB
Above FL 280	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

7 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Above FL 280	M 0.76	-1.0 / IDLE	-1.5 / IDLE	-2.0 / IDLE
FL 280 - FL 200	300 kt	-0.5 / IDLE	-1.5 / IDLE	-2.5 / IDLE
FL 200 - FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-1.5 / IDLE
Below FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-2.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.0 / IDLE	2.0 / IDLE

8 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.0 / 63.4	5.0 / 59.4	5.0 / 54.6
1	S	7.5 / 65.6	7.5 / 61.4	7.5 / 56.6
1 + F (1)	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
2	F	7.0 / 68.5	7.0 / 64.7	7.0 / 59.9
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	4.0 / 74.8	4.0 / 71.0	4.0 / 65.8

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

9

FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	2.0 / 60.0	2.0 / 56.0	1.5 / 51.6

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE.....OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 60 000 kg/132 000 lb	*-2.5*
70 000 kg/154 000 lb	*-1.5*
80 000 kg/176 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.4 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
94	*251*	*261*	*271*
92	*248*	*258*	*268*
88	*242*	*252*	*262*
86	*239*	*249*	*259*
84	*236*	*246*	*256*
82	*233*	*243*	*253*
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind).
Average rate of descent is approximately 1 700 ft/min

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS..... ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR..... ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 and L/G DOWN) will be approximately 1.1 nm per 1 000 ft (with no wind).*

BARO..... SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK.....ON

  ATC.....NOTIFY

  FIRE pushbutton (ENG and APU).....PUSH

  AGENTS (ENG and APU).....DISCH

  Engine Agent 2 is not available.

  - **If Evacuation required:**

    EVACUATION.....INITIATE

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

ELT ⩤ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 160 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**
L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU)..... PUSH
AGENT (ENG and APU)..... DISCH
Engine Agent 2 is not available.
EVACUATION..... INITIATE
ELT ⩤ ..... CHECK EMITTING
If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....240 KT/GREEN DOT

Initially, fly 240 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⋘ /ATC1.....USE
ATC..... NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT..... PREPARE
SIGNS.....ON
COMMERCIAL.....OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3; L/G DOWN), will be approximately 1.1 N/m per 1 000 ft (with no wind).*

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....160 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt.

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank.....PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard ″USE MAN PITCH TRIM″ on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever.....DOWN
    APPROACH SPEED.....ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

GND SPLR.....ARM
MAX BRK PR.....1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK.....ON
  ATC.....NOTIFY
  - **If Evacuation required :**
    EVACUATION.....INITIATE
    ELT ⩤.....CHECK EMITTING
    If not, switch on the transmitter

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

■ **If Evacuation not required :**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY

EVACUATION..... INITIATE

ELT ⋖ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

1 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

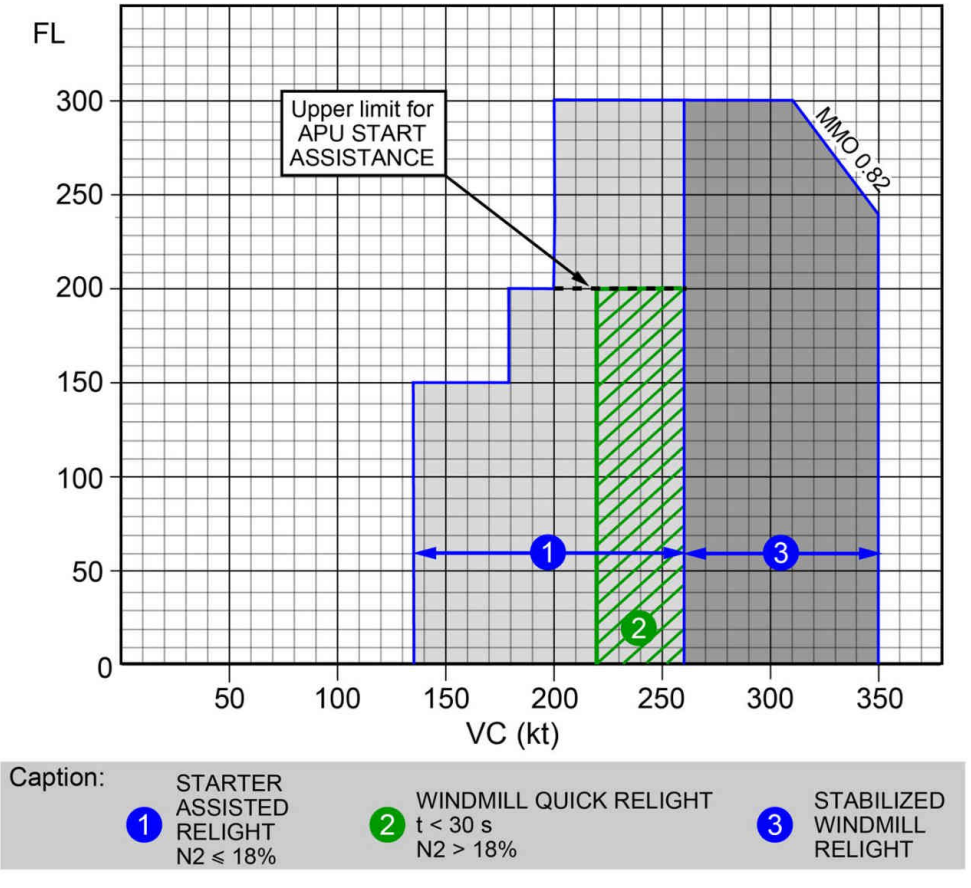
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

2

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time)..... INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	76	74	71	68	64	61	58	54
5	76	74	71	68	64	61	56	52
10	76	74	71	68	64	59	54	
15	76	74	71	67	61	57	52	
20	76	74	69	64	59	54		
25	76	71	66	61	56			
30	73	68	64	59	54			
35	69	65	61	57	52			
40	66	62	59	55				
45	63	60	57					
50	60	57						
55	57							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

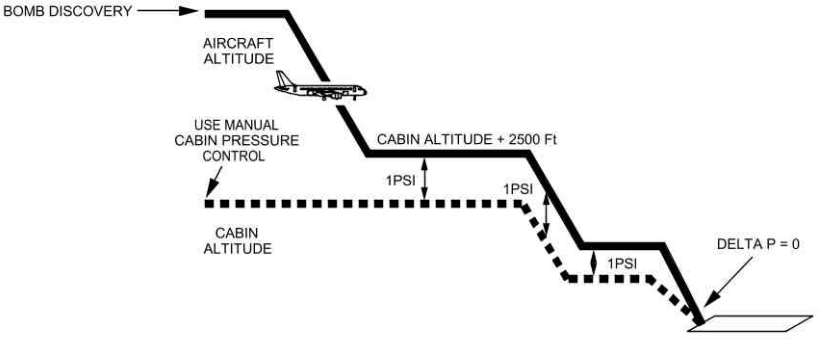
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

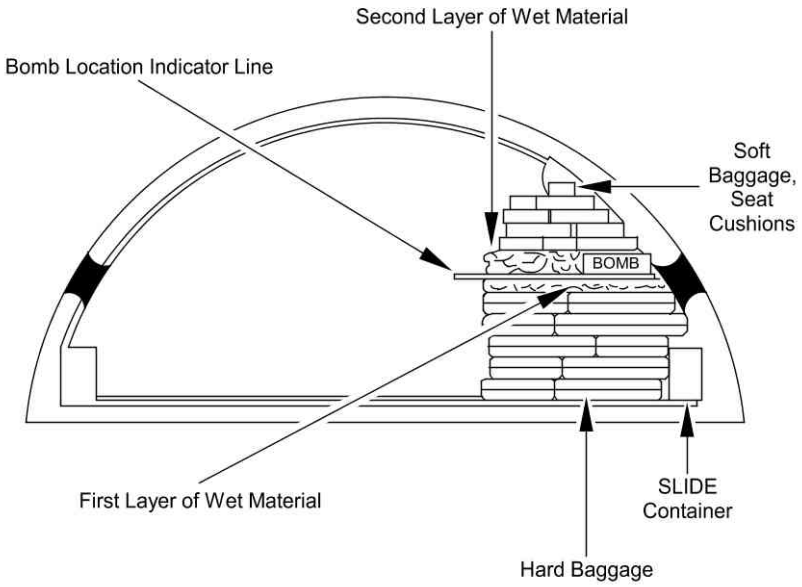
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: At very high weights, VFE CONF1 is close to VLS clean. To select CONF1, deselect A/THR, decelerate to (or slightly below) VLS and select CONF1 when below VFE. When established at CONF1, the crew can re-engage the A/THR and use managed speed again

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	92	88	82	76	70	65	60	55
15	92	88	82	76	70	65	60	55
20	92	88	82	76	70	65	60	55
25	92	87	80	75	69	64	59	
30	92	85	79	73	68			
35	88	82	76	70	65			
40	85	79	73	68				
45	82	75	70					
50	78	72						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON

PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
ECON FLOW.....OFF

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to the QRH ABN 34 Unreliable Speed Indication / ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost, Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL..... FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in wing tank	GALLEY (OFF)
	Fuel temp lower than -40 °C in wing tank	Consider descending to a lower altitude, and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G01 on 49VU, M06 on 121VU. G02 on 49VU, M07 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M06, M07, G01, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M07 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M06 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M07, G02 - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁✻) of the FAP` in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication	FQIC	**On ground, or in flight:** - Pull the C/B of the affected channel: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) - Wait 5 s, before pushing the C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight.
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A321..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A321..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A321	1/2	1	**20 Sep 2012 : Modification of content of the element 20803157.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits:
    - AUTOLAND (HWC30 / TWC10 / XWC20)
    - MANUAL LAND - CAT II (HWC40 / TWC10 / XWC25)
    - OEI ROLLOUT (IDLE REV ONLY XWC15)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

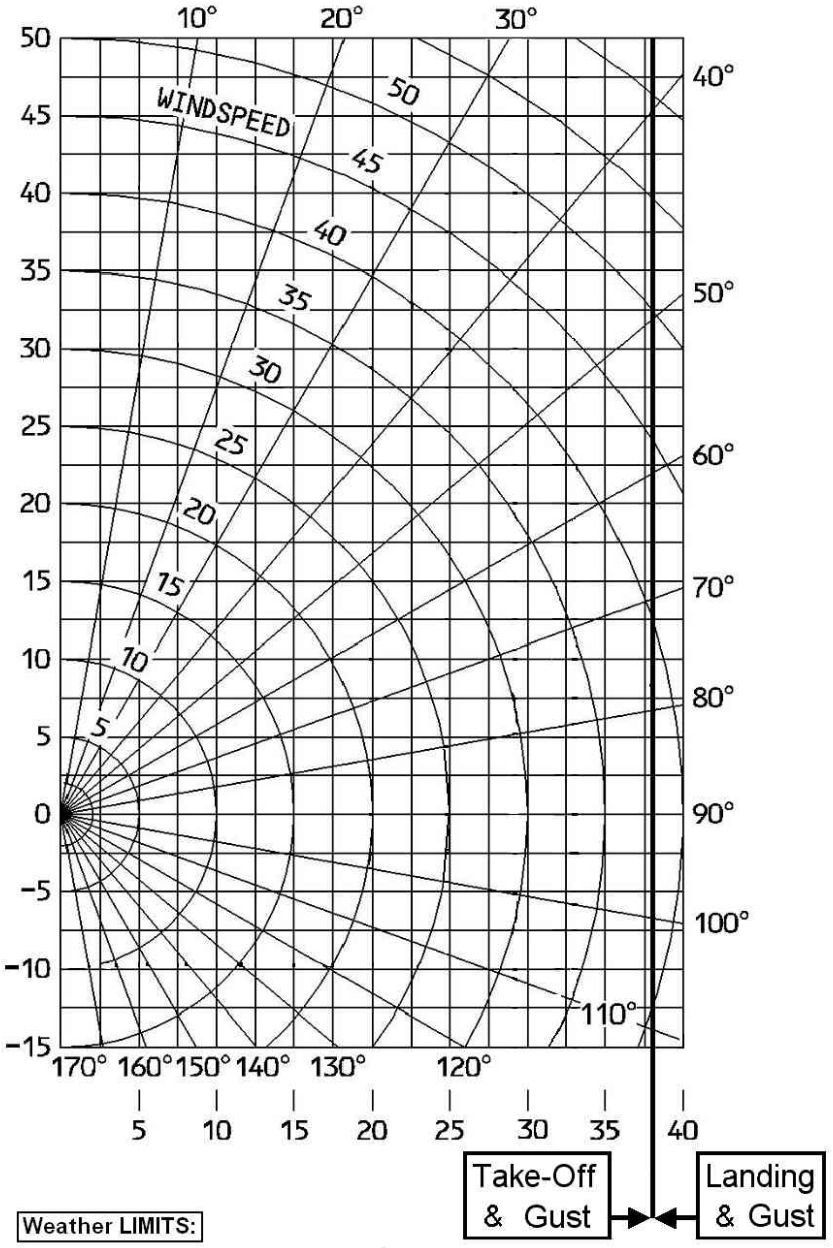
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	360	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A321



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind
15 knot x-wind limit for OEI Rollout with IDLE reverse only.

CAT II No Autoland
40 knots headwind
25 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A321

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)					
W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
52	130	168	188	121	116
56	135	174	194	125	121
60	140	180	200	130	125
64	144	186	206	134	129
68	149	192	212	138	133
72	153	197	218	142	137
76	157	203	224	146	141
80	161	208	230	150	144
84	165	213	236	154	148
88	169	218	242	157	151
92	173	223	248	161	155
94	175	226	251	163	157

(1) Above FL 200 add 1 kt per additional 1 000 ft.

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

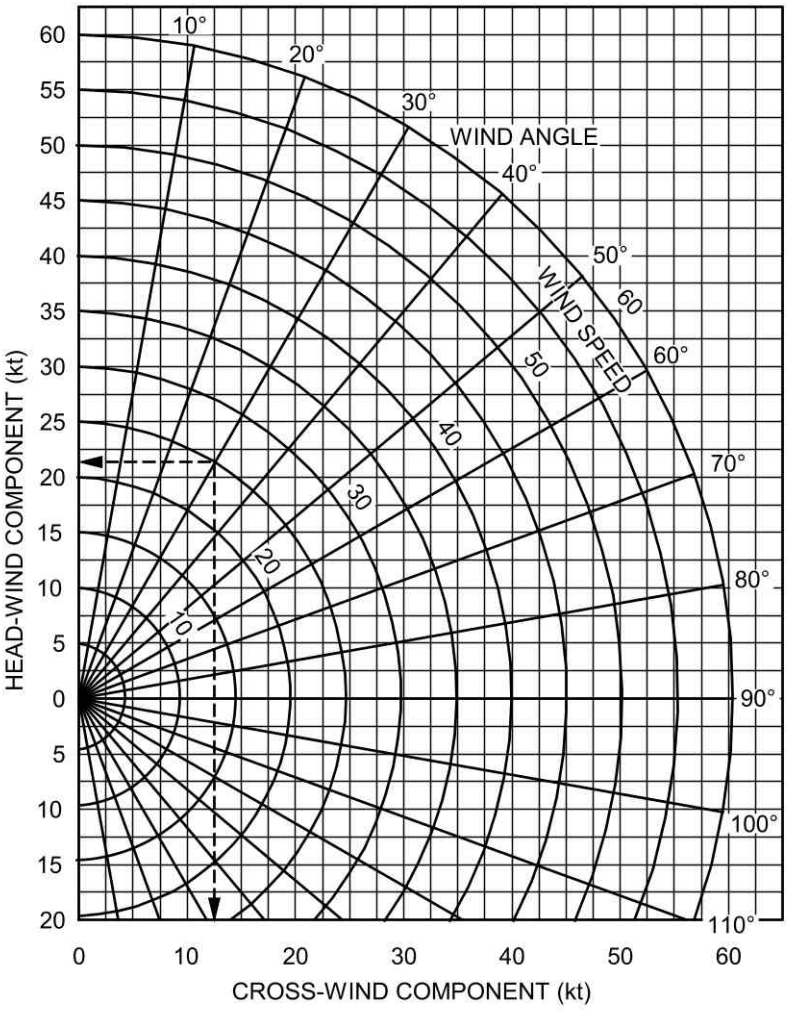
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1 The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VLS CONF FULL (kt) (=VREF)	116	119	123	127	131	135	139	143	146	150	153	157
VLS CONF3 (kt)	121	123	128	132	136	140	144	148	152	156	159	163

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 210**	- 10	+ 60	+ 80	+ 50	+ 140	+ 50	+ 30	- 20
AUTOBRAKE MED	**1 480**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 260 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 290**	- 10	+ 60	+ 80	+ 60	+ 160	+ 50	+ 30	- 30
AUTOBRAKE MED	**1 570**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 270 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 520**	- 10	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
AUTOBRAKE MED	**1 560**	- 10	+ 50	+ 110	+ 80	+ 210	+ 70	+ 60	- 20
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 650**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 690**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 40
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 420 m**
Autoland	**+ 330 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 730**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
AUTOBRAKE MED	**1 780**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
AUTOBRAKE LOW	**2 100**	- 20	+ 40	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 450 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 860**	- 10	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
AUTOBRAKE MED	**1 900**	- 10	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 120
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 90	+ 220	+ 80	+ 50	- 10

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 320 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 930**	- 10	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 130
AUTOBRAKE MED	**1 970**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 140
AUTOBRAKE LOW	**2 160**	- 20	+ 50	+ 140	+ 80	+ 230	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 430 m**
Autoland	**+ 320 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 070**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 110	- 150
AUTOBRAKE MED	**2 110**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 160
AUTOBRAKE LOW	**2 310**	- 20	+ 50	+ 140	+ 90	+ 240	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 330 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 210**	- 20	+ 70	+ 170	+ 130	+ 360	+ 120	+ 160	- 160
AUTOBRAKE MED	**2 240**	- 20	+ 70	+ 150	+ 130	+ 370	+ 110	+ 160	- 160
AUTOBRAKE LOW	**2 270**	- 20	+ 70	+ 150	+ 140	+ 370	+ 100	+ 170	- 50

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 390 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 430**	- 30	+ 80	+ 170	+ 150	+ 390	+ 130	+ 180	- 190
AUTOBRAKE MED	**2 460**	- 30	+ 80	+ 150	+ 150	+ 400	+ 120	+ 190	- 190
AUTOBRAKE LOW	**2 480**	- 30	+ 80	+ 170	+ 150	+ 390	+ 120	+ 190	- 70

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 410 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 430**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 440
AUTOBRAKE MED	**3 450**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 450
AUTOBRAKE LOW	**3 480**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 380 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 700**	- 30	+ 70	+ 160	+ 200	+ 580	+ 150	+ 850	- 490
AUTOBRAKE MED	**3 720**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 850	- 510
AUTOBRAKE LOW	**3 750**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 400 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VREF = VLS CONF FULL (kt)	116	119	123	127	131	135	139	143	146	150	153	157

+

ΔVREF
Refer to the applicable Landing Distance table

+

APPRoach CORrection	
ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP
VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)
• If APPR COR > 1/3 Headwind component: Correct the landing distance (**SPD** column) with **SPD = APPR COR** • If APPR COR = 1/3 Headwind component: No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC BUS 2 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 40
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 50
DC BUS 1+2 FAULT	FULL	0	**1 860**	- 20	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6	**2 020**	- 20	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 410**	- 10	+ 50	+ 80	+ 70	+ 170	+ 50	+ 30	- 30
	3	16	**1 490**	- 10	+ 60	+ 90	+ 70	+ 170	+ 50	+ 30	- 40
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 870**	- 10	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6 / 140kt	**2 030**	- 10	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 080**	- 10	+ 80	+ 110	+ 80	+ 210	+ 80	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 70
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 80
DC BUS 2 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 100
	3	6	**2 010**	- 20	+ 70	+ 180	+ 120	+ 280	+ 100	+ 110	- 120
DC BUS 1+2 FAULT	FULL	0	**2 010**	- 20	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6	**2 210**	- 30	+ 80	+ 180	+ 120	+ 300	+ 110	+ 140	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 670**	- 20	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 70
	3	6	**1 820**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 80	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 860**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 90
	3	16	**2 020**	- 20	+ 60	+ 140	+ 110	+ 250	+ 90	+ 80	- 110
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 020**	- 10	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 220**	- 20	+ 80	+ 170	+ 120	+ 300	+ 100	+ 140	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 300**	- 20	+ 80	+ 160	+ 130	+ 300	+ 100	+ 130	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 120
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
DC BUS 2 FAULT	FULL	0	**2 060**	- 20	+ 40	+ 130	+ 90	+ 220	+ 70	+ 110	- 160
	3	6	**2 230**	- 20	+ 40	+ 140	+ 90	+ 230	+ 80	+ 130	- 190
DC BUS 1+2 FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 240**	- 20	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 890**	- 10	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 030**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 070**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 150
	3	16	**2 220**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 170
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 070**	- 10	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6 / 140kt	**2 250**	- 10	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 310**	- 10	+ 60	+ 130	+ 100	+ 230	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
DC BUS 2 FAULT	FULL	0	**2 320**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 160	- 230
	3	6	**2 530**	- 20	+ 50	+ 150	+ 110	+ 270	+ 90	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 340**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 550**	- 20	+ 50	+ 160	+ 110	+ 270	+ 100	+ 190	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 140**	- 20	+ 40	+ 120	+ 90	+ 250	+ 70	+ 130	- 190
	3	6	**2 290**	- 20	+ 40	+ 130	+ 90	+ 250	+ 90	+ 150	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 330**	- 20	+ 40	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	16	**2 490**	- 20	+ 40	+ 120	+ 110	+ 250	+ 90	+ 150	- 240
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 340**	- 10	+ 50	+ 150	+ 100	+ 260	+ 90	+ 170	INOP
	3	6 / 140kt	**2 560**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 190	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 600**	- 10	+ 50	+ 150	+ 110	+ 270	+ 100	+ 180	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 210
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 240
DC BUS 2 FAULT	FULL	0	**2 770**	- 30	+ 90	+ 240	+ 190	+ 470	+ 170	+ 300	- 300
	3	6	**3 160**	- 40	+ 100	+ 260	+ 220	+ 540	+ 160	+ 380	- 390
DC BUS 1+2 FAULT	FULL	0	**2 810**	- 30	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6	**3 200**	- 40	+ 100	+ 270	+ 230	+ 560	+ 170	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 170	+ 440	+ 120	+ 220	- 250
	3	6	**2 770**	- 30	+ 80	+ 200	+ 180	+ 470	+ 140	+ 260	- 290
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 800**	- 30	+ 80	+ 180	+ 180	+ 450	+ 140	+ 250	- 290
	3	16	**3 060**	- 30	+ 80	+ 190	+ 190	+ 470	+ 150	+ 270	- 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 820**	- 10	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6 / 140kt	**3 210**	- 20	+ 100	+ 270	+ 230	+ 570	+ 170	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**3 260**	- 30	+ 100	+ 230	+ 220	+ 510	+ 170	+ 370	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 530
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 590
DC BUS 2 FAULT	FULL	0	**4 470**	- 30	+ 70	+ 220	+ 240	+ 710	+ 190	+ 1 550	- 990
	3	6	**4 980**	- 40	+ 80	+ 240	+ 270	+ 750	+ 200	+ 1 790	- 1 180
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**4 260**	- 30	+ 50	+ 180	+ 190	+ 730	+ 160	+ 2 020	- 1 170
	3	6	**4 570**	- 30	+ 50	+ 190	+ 210	+ 750	+ 180	+ 2 130	- 1 280
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**4 530**	- 30	+ 50	+ 180	+ 210	+ 740	+ 180	+ 2 010	- 1 220
	3	16	**4 860**	- 30	+ 50	+ 180	+ 220	+ 750	+ 190	+ 2 130	- 1 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 290**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 30
	3	6	**1 380**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 430**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
THREE SPLR FAULT	FULL	0	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 40
	3	6	**1 500**	- 10	+ 50	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
ALL SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
GND SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
SEC 1 or SEC 3 FAULT	FULL	0	**1 320**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 50	+ 100	+ 60	+ 150	+ 60	+ 40	- 30
SEC 2 FAULT	FULL	0	**1 270**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 350**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SEC 2+3 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
SEC 1+3 FAULT	FULL	0	**1 460**	- 10	+ 50	+ 110	+ 60	+ 150	+ 50	+ 40	- 50
	3	6	**1 550**	- 10	+ 50	+ 120	+ 70	+ 150	+ 60	+ 50	- 60
SEC 1+2 FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 450**	- 10	+ 50	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
RUDDER JAM	FULL	0	**1 430**	- 10	+ 60	+ 120	+ 90	+ 190	+ 60	+ 50	- 30
	3	6	**1 570**	- 10	+ 70	+ 120	+ 90	+ 200	+ 70	+ 50	- 40
SEC 1+2+3 FAULT	3	10	**1 700**	- 10	+ 50	+ 140	+ 70	+ 160	+ 70	+ 60	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 660**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
	3	6	**1 830**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 920**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 80	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 800**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 80
	3	6	**1 990**	- 20	+ 60	+ 160	+ 120	+ 270	+ 90	+ 100	- 100
THREE SPLR FAULT	FULL	0	**1 890**	- 20	+ 60	+ 170	+ 110	+ 270	+ 90	+ 100	- 90
	3	6	**2 090**	- 20	+ 70	+ 180	+ 130	+ 290	+ 100	+ 120	- 110
ALL SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
GND SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
SEC 1 or SEC 3 FAULT	FULL	0	**1 720**	- 20	+ 60	+ 140	+ 90	+ 240	+ 80	+ 80	- 70
	3	6	**1 870**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 80
SEC 2 FAULT	FULL	0	**1 620**	- 10	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 50
	3	6	**1 770**	- 20	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 70
SEC 2+3 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 100
SEC 1+3 FAULT	FULL	0	**1 990**	- 20	+ 70	+ 190	+ 120	+ 290	+ 100	+ 120	- 130
	3	6	**2 200**	- 20	+ 70	+ 210	+ 140	+ 310	+ 110	+ 150	- 160
SEC 1+2 FAULT	FULL	0	**1 810**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 90
	3	6	**1 960**	- 20	+ 60	+ 160	+ 110	+ 270	+ 100	+ 100	- 110
RUDDER JAM	FULL	0	**1 820**	- 20	+ 60	+ 140	+ 110	+ 270	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 160	+ 130	+ 290	+ 100	+ 110	- 100
SEC 1+2+3 FAULT	3	10	**2 500**	- 30	+ 80	+ 260	+ 160	+ 350	+ 140	+ 210	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 870**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 030**	- 20	+ 40	+ 110	+ 80	+ 200	+ 80	+ 100	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 110**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 020**	- 20	+ 40	+ 130	+ 80	+ 210	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 150
THREE SPLR FAULT	FULL	0	**2 120**	- 20	+ 40	+ 140	+ 90	+ 220	+ 80	+ 120	- 150
	3	6	**2 300**	- 20	+ 40	+ 150	+ 100	+ 230	+ 80	+ 130	- 170
ALL SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
GND SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
SEC 1 or SEC 3 FAULT	FULL	0	**1 940**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
	3	6	**2 080**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 830**	- 10	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 100
	3	6	**1 970**	- 20	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 110
SEC 2+3 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 130	+ 80	+ 210	+ 80	+ 110	- 130
	3	6	**2 220**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 220**	- 20	+ 40	+ 160	+ 100	+ 230	+ 80	+ 140	- 200
	3	6	**2 410**	- 20	+ 50	+ 160	+ 110	+ 240	+ 90	+ 160	- 230
SEC 1+2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 150
	3	6	**2 170**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 110	- 170
RUDDER JAM	FULL	0	**2 040**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 110	- 120
	3	6	**2 220**	- 20	+ 50	+ 130	+ 110	+ 250	+ 90	+ 130	- 150
SEC 1+2+3 FAULT	3	10	**2 690**	- 20	+ 50	+ 200	+ 120	+ 260	+ 110	+ 200	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 090**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 120	- 140
	3	6	**2 280**	- 20	+ 40	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 360**	- 20	+ 40	+ 120	+ 100	+ 240	+ 90	+ 140	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 270**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 180
	3	6	**2 470**	- 20	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 210
THREE SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 200
	3	6	**2 600**	- 20	+ 50	+ 160	+ 120	+ 270	+ 90	+ 190	- 230
ALL SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
GND SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
SEC 1 or SEC 3 FAULT	FULL	0	**2 180**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 330**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 180
SEC 2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 300**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 180
	3	6	**2 500**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 510**	- 20	+ 50	+ 170	+ 110	+ 270	+ 100	+ 200	- 260
	3	6	**2 730**	- 20	+ 50	+ 180	+ 130	+ 280	+ 100	+ 220	- 310
SEC 1+2 FAULT	FULL	0	**2 290**	- 20	+ 50	+ 140	+ 100	+ 250	+ 90	+ 150	- 210
	3	6	**2 440**	- 20	+ 50	+ 140	+ 110	+ 260	+ 90	+ 160	- 220
RUDDER JAM	FULL	0	**2 260**	- 20	+ 50	+ 130	+ 120	+ 280	+ 90	+ 150	- 170
	3	6	**2 470**	- 20	+ 60	+ 130	+ 130	+ 290	+ 90	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**3 060**	- 30	+ 60	+ 230	+ 140	+ 310	+ 120	+ 290	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 450**	- 30	+ 80	+ 160	+ 150	+ 400	+ 110	+ 190	- 170
	3	6	**2 760**	- 30	+ 80	+ 200	+ 170	+ 430	+ 150	+ 250	- 220
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 880**	- 30	+ 80	+ 180	+ 180	+ 440	+ 130	+ 260	- 240
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 690**	- 30	+ 90	+ 210	+ 170	+ 450	+ 150	+ 260	- 220
	3	6	**3 040**	- 30	+ 100	+ 240	+ 200	+ 480	+ 170	+ 340	- 280
THREE SPLR FAULT	FULL	0	**2 890**	- 30	+ 100	+ 260	+ 200	+ 480	+ 160	+ 320	- 260
	3	6	**3 250**	- 40	+ 100	+ 270	+ 230	+ 530	+ 180	+ 410	- 330
ALL SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
GND SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
SEC 1 or SEC 3 FAULT	FULL	0	**2 580**	- 30	+ 80	+ 190	+ 170	+ 430	+ 120	+ 230	- 200
	3	6	**2 810**	- 30	+ 80	+ 200	+ 180	+ 440	+ 150	+ 260	- 230
SEC 2 FAULT	FULL	0	**2 380**	- 30	+ 70	+ 170	+ 140	+ 380	+ 120	+ 180	- 160
	3	6	**2 620**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 220	- 200
SEC 2+3 FAULT	FULL	0	**2 740**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 230
	3	6	**3 110**	- 40	+ 100	+ 250	+ 210	+ 510	+ 160	+ 360	- 300
SEC 1+3 FAULT	FULL	0	**3 070**	- 40	+ 100	+ 280	+ 220	+ 520	+ 170	+ 400	- 360
	3	6	**3 470**	- 40	+ 110	+ 290	+ 260	+ 570	+ 170	+ 510	- 460
SEC 1+2 FAULT	FULL	0	**2 750**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 270
	3	6	**2 990**	- 30	+ 90	+ 220	+ 200	+ 480	+ 160	+ 310	- 310
RUDDER JAM	FULL	0	**2 550**	- 30	+ 90	+ 170	+ 180	+ 430	+ 120	+ 220	- 190
	3	6	**2 820**	- 30	+ 90	+ 190	+ 200	+ 460	+ 140	+ 270	- 240
SEC 1+2+3 FAULT	3	10	**4 000**	- 50	+ 130	+ 370	+ 310	+ 640	+ 230	+ 710	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 720**	- 30	+ 70	+ 170	+ 200	+ 590	+ 150	+ 880	- 500
	3	6	**4 150**	- 40	+ 80	+ 190	+ 220	+ 620	+ 180	+ 1 030	- 600
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**4 270**	- 40	+ 80	+ 180	+ 230	+ 630	+ 170	+ 1 040	- 610
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 120**	- 40	+ 80	+ 200	+ 230	+ 630	+ 170	+ 1 090	- 610
	3	6	**4 580**	- 40	+ 90	+ 230	+ 260	+ 660	+ 190	+ 1 260	- 720
THREE SPLR FAULT	FULL	0	**4 440**	- 40	+ 90	+ 230	+ 250	+ 660	+ 190	+ 1 280	- 700
	3	6	**4 900**	- 40	+ 90	+ 260	+ 280	+ 690	+ 210	+ 1 450	- 810
ALL SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
GND SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
SEC 1 or SEC 3 FAULT	FULL	0	**3 940**	- 30	+ 80	+ 190	+ 210	+ 610	+ 170	+ 990	- 560
	3	6	**4 220**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 060	- 610
SEC 2 FAULT	FULL	0	**3 640**	- 30	+ 70	+ 160	+ 190	+ 590	+ 150	+ 840	- 480
	3	6	**3 930**	- 30	+ 70	+ 170	+ 210	+ 600	+ 160	+ 920	- 540
SEC 2+3 FAULT	FULL	0	**4 220**	- 40	+ 80	+ 210	+ 240	+ 640	+ 170	+ 1 150	- 640
	3	6	**4 680**	- 40	+ 90	+ 240	+ 270	+ 670	+ 200	+ 1 320	- 750
SEC 1+3 FAULT	FULL	0	**4 710**	- 40	+ 90	+ 260	+ 270	+ 690	+ 200	+ 1 450	- 870
	3	6	**5 200**	- 50	+ 100	+ 280	+ 310	+ 720	+ 220	+ 1 660	- 1 030
SEC 1+2 FAULT	FULL	0	**4 240**	- 40	+ 80	+ 220	+ 240	+ 640	+ 180	+ 1 160	- 690
	3	6	**4 490**	- 40	+ 80	+ 210	+ 250	+ 660	+ 190	+ 1 210	- 740
RUDDER JAM	FULL	0	**3 740**	- 40	+ 90	+ 170	+ 230	+ 640	+ 160	+ 880	- 500
	3	6	**4 070**	- 40	+ 90	+ 190	+ 250	+ 660	+ 190	+ 970	- 560
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 160**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 60	- 40
FLAPS<1	SLATS<1	3	45	**2 060**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 50	- 40
	SLATS≥1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 730**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 40
	SLATS≥1	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 630**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 30
	SLATS≥1	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
FLAPS=3	SLATS<1	3	25	**1 600**	- 10	+ 60	N/A	+ 70	+ 170	+ 60	+ 30	- 30
	1≤SLATS≤3	3	10	**1 390**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 320**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	SLATS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS FAULT	FLAPS<1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
	1≤FLAPS<2	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
	2≤FLAPS<3	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
	FLAPS=3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	FLAPS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
SLATS FAULT	SLATS<1	3	25	**1 590**	- 10	+ 50	N/A	+ 70	+ 160	+ 60	+ 40	- 30
	1≤SLATS≤3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 330**	- 10	+ 50	+ 80	+ 60	+ 160	+ 50	+ 30	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 770**	- 30	+ 70	N/A	+ 160	+ 300	+ 130	+ 110	- 140
FLAPS<1	SLATS<1	3	45	**2 650**	- 20	+ 70	N/A	+ 150	+ 290	+ 130	+ 110	- 130
	SLATS≥1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 280**	- 20	+ 60	N/A	+ 130	+ 260	+ 100	+ 90	- 100
	SLATS≥1	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
2≤FLAPS<3	SLATS<1	3	25	**2 150**	- 20	+ 60	N/A	+ 120	+ 250	+ 100	+ 80	- 90
	SLATS≥1	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
FLAPS=3	SLATS<1	3	25	**2 100**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 810**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 760**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
	SLATS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
FLAPS FAULT	FLAPS<1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
	2≤FLAPS<3	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
	FLAPS=3	3	10	**1 800**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	FLAPS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
SLATS FAULT	SLATS<1	3	25	**2 090**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 80
	1≤SLATS≤3	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 800**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
FLAPS<1	SLATS<1	3	45	**2 710**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
	SLATS≥1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
1≤FLAPS<2	SLATS<1	3	30	**2 420**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 150
	SLATS≥1	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
2≤FLAPS<3	SLATS<1	3	25	**2 310**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	SLATS≥1	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
FLAPS=3	SLATS<1	3	25	**2 260**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 140
	1≤SLATS≤3	3	10	**2 010**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 120
	SLATS>3	3	5	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 110
FLAPS>3	1≤SLATS≤3	FULL	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
FLAPS FAULT	FLAPS<1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	1≤FLAPS<2	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
	2≤FLAPS<3	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS=3	3	10	**2 010**	- 20	+ 40	+ 90	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
SLATS FAULT	SLATS<1	3	25	**2 240**	- 20	+ 40	N/A	+ 90	+ 200	+ 70	+ 80	- 120
	1≤SLATS≤3	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 910**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 180**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 260
FLAPS<1	SLATS<1	3	45	**3 080**	- 20	+ 50	N/A	+ 120	+ 270	+ 110	+ 160	- 250
	SLATS≥1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
1≤FLAPS<2	SLATS<1	3	30	**2 730**	- 20	+ 40	N/A	+ 110	+ 250	+ 100	+ 150	- 220
	SLATS≥1	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
2≤FLAPS<3	SLATS<1	3	25	**2 600**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 200
	SLATS≥1	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
FLAPS=3	SLATS<1	3	25	**2 530**	- 20	+ 40	N/A	+ 100	+ 240	+ 90	+ 130	- 190
	1≤SLATS≤3	3	10	**2 260**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	SLATS>3	3	5	**2 160**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
FLAPS>3	1≤SLATS≤3	FULL	10	**2 200**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 120	- 150
	SLATS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
FLAPS FAULT	FLAPS<1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
	1≤FLAPS<2	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
	2≤FLAPS<3	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
	FLAPS=3	3	10	**2 250**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	FLAPS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
SLATS FAULT	SLATS<1	3	25	**2 490**	- 20	+ 40	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150
	SLATS>3	3	5	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 390**	- 40	+ 100	N/A	+ 270	+ 560	+ 230	+ 420	- 480
FLAPS<1	SLATS<1	3	45	**4 240**	- 40	+ 100	N/A	+ 270	+ 560	+ 210	+ 420	- 460
	SLATS≥1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
1≤FLAPS<2	SLATS<1	3	30	**3 520**	- 40	+ 90	N/A	+ 220	+ 500	+ 160	+ 320	- 340
	SLATS≥1	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
2≤FLAPS<3	SLATS<1	3	25	**3 270**	- 30	+ 80	N/A	+ 200	+ 460	+ 160	+ 280	- 300
	SLATS≥1	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
FLAPS=3	SLATS<1	3	25	**3 090**	- 30	+ 80	N/A	+ 180	+ 430	+ 150	+ 240	- 260
	1≤SLATS≤3	3	10	**2 710**	- 30	+ 80	+ 180	+ 160	+ 430	+ 140	+ 220	- 220
	SLATS>3	3	5	**2 580**	- 30	+ 70	+ 180	+ 160	+ 430	+ 120	+ 210	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 410	+ 130	+ 190	- 190
	SLATS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
FLAPS FAULT	FLAPS<1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
	1≤FLAPS<2	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
	2≤FLAPS<3	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
	FLAPS=3	3	10	**2 710**	- 30	+ 80	+ 170	+ 170	+ 430	+ 130	+ 220	- 220
	FLAPS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
SLATS FAULT	SLATS<1	3	25	**3 020**	- 30	+ 80	N/A	+ 170	+ 390	+ 140	+ 210	- 230
	1≤SLATS≤3	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190
	SLATS>3	3	5	**2 530**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 190	- 180

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
1≤FLAPS<2	SLATS<1	3	30	**5 410**	- 30	+ 50	N/A	+ 250	+ 770	+ 210	+ 2 230	- 1 060
	SLATS≥1	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
2≤FLAPS<3	SLATS<1	3	25	**5 080**	- 30	+ 50	N/A	+ 230	+ 750	+ 190	+ 2 100	- 980
	SLATS≥1	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
FLAPS=3	SLATS<1	3	25	**4 750**	- 30	+ 50	N/A	+ 210	+ 730	+ 190	+ 1 880	- 880
	1≤SLATS≤3	3	10	**4 380**	- 30	+ 50	+ 150	+ 200	+ 730	+ 170	+ 1 910	- 820
	SLATS>3	3	5	**4 240**	- 30	+ 50	+ 160	+ 190	+ 720	+ 160	+ 1 900	- 810
FLAPS>3	1≤SLATS≤3	FULL	10	**4 180**	- 20	+ 50	+ 150	+ 190	+ 710	+ 160	+ 1 750	- 760
	SLATS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
FLAPS FAULT	FLAPS<1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
	1≤FLAPS<2	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
	2≤FLAPS<3	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
	FLAPS=3	3	10	**4 370**	- 30	+ 50	+ 160	+ 200	+ 730	+ 170	+ 1 900	- 820
	FLAPS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
SLATS FAULT	SLATS<1	3	25	**4 270**	- 40	+ 70	N/A	+ 220	+ 600	+ 180	+ 860	- 550
	1≤SLATS≤3	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510
	SLATS>3	3	5	**3 790**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 500

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 390**	- 10	+ 50	+ 90	+ 50	+ 130	+ 50	+ 40	- 40
	3	6	**1 490**	- 10	+ 50	+ 90	+ 60	+ 140	+ 50	+ 40	- 50
B SYS LO PR	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
Y SYS LO PR	FULL	0	**1 320**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 890**	- 10	+ 50	N/A	+ 70	+ 150	+ 70	+ 60	- 80
G + Y	3	30	**2 690**	- 20	+ 60	N/A	+ 110	+ 210	+ 90	+ 130	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**1 530**	- 10	+ 60	+ 100	+ 60	+ 160	+ 60	+ 40	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
G SYS LO PR	FULL	0	**1 810**	- 20	+ 60	+ 140	+ 100	+ 250	+ 90	+ 90	- 90
	3	6	**2 010**	- 20	+ 60	+ 160	+ 120	+ 270	+ 100	+ 100	- 120
B SYS LO PR	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 60
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
Y SYS LO PR	FULL	0	**1 730**	- 20	+ 60	+ 140	+ 100	+ 240	+ 80	+ 80	- 70
	3	6	**1 880**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 30	+ 70	N/A	+ 160	+ 320	+ 120	+ 160	- 220
G + Y	3	30	**3 090**	- 30	+ 90	N/A	+ 180	+ 340	+ 140	+ 210	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 100**	- 10	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 150

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 950**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 690**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 140	- 230
G + Y	3	30	**3 020**	- 20	+ 60	N/A	+ 130	+ 250	+ 110	+ 180	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 300**	- 10	+ 40	+ 130	+ 100	+ 230	+ 80	+ 120	- 200

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 170
	3	6	**2 350**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 200
B SYS LO PR	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 140
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 160
Y SYS LO PR	FULL	0	**2 180**	- 20	+ 40	+ 130	+ 90	+ 240	+ 80	+ 130	- 170
	3	6	**2 340**	- 20	+ 40	+ 130	+ 100	+ 250	+ 90	+ 140	- 190
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 020**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 200	- 300
G + Y	3	30	**3 400**	- 30	+ 60	N/A	+ 150	+ 290	+ 120	+ 250	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 580**	- 10	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 160	+ 420	+ 120	+ 220	- 220
	3	6	**2 850**	- 30	+ 90	+ 230	+ 180	+ 440	+ 170	+ 270	- 280
B SYS LO PR	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 180
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 210
Y SYS LO PR	FULL	0	**2 580**	- 30	+ 80	+ 200	+ 170	+ 420	+ 130	+ 230	- 220
	3	6	**2 820**	- 30	+ 90	+ 200	+ 180	+ 440	+ 150	+ 270	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 850**	- 40	+ 110	N/A	+ 250	+ 530	+ 180	+ 420	- 490
G + Y	3	30	**4 380**	- 50	+ 120	N/A	+ 290	+ 560	+ 220	+ 550	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**3 180**	- 30	+ 100	+ 220	+ 210	+ 490	+ 180	+ 350	- 380

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 860**	- 30	+ 70	+ 180	+ 210	+ 610	+ 160	+ 950	- 550
	3	6	**4 310**	- 40	+ 80	+ 200	+ 240	+ 640	+ 180	+ 1 110	- 680
B SYS LO PR	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 520
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 570
Y SYS LO PR	FULL	0	**3 950**	- 30	+ 80	+ 190	+ 220	+ 610	+ 170	+ 990	- 430
	3	6	**4 230**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 070	- 490
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	30	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**4 700**	- 30	+ 90	+ 220	+ 260	+ 670	+ 200	+ 1 250	- 670

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 750**	- 20	+ 60	+ 100	+ 70	+ 190	+ 60	+ 70	- 60
	3	6	**1 880**	- 20	+ 70	+ 100	+ 70	+ 190	+ 70	+ 80	- 70
AUTO BRK FAULT	FULL	0	**1 320**	- 10	+ 50	+ 80	+ 50	+ 140	+ 40	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 80	+ 60	+ 150	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 800**	- 20	+ 60	+ 110	+ 80	+ 230	+ 70	+ 80	- 60
	3	6	**1 940**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 90	- 70
AUTO BRK FAULT	FULL	0	**1 680**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 70	- 60
	3	6	**1 840**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 790**	- 10	+ 60	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 70	+ 100	+ 80	+ 200	+ 70	+ 80	- 100
AUTO BRK FAULT	FULL	0	**1 790**	- 10	+ 30	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 230	+ 60	+ 100	- 120
	3	6	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 150**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 380	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 180
AUTO BRK FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 370	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 190

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 510**	- 30	+ 70	+ 160	+ 180	+ 570	+ 150	+ 780	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510
AUTO BRK FAULT	FULL	0	**3 520**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 510

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 170	+ 90	+ 220	+ 90	+ 30	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 450**	- 20	+ 50	+ 160	+ 100	+ 250	+ 90	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 190	- 50
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 160	+ 200	+ 600	+ 160	+ 870	- 460
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 890**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 40	- 40
	3	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 350**	- 10	+ 50	+ 90	+ 60	+ 150	+ 60	+ 30	- 30
	3	16	**1 450**	- 10	+ 50	+ 90	+ 70	+ 160	+ 60	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 480**	- 20	+ 70	N/A	+ 130	+ 260	+ 110	+ 90	- 130
	3	10	**1 780**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 70	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 740**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 60	- 70
	3	16	**1 900**	- 20	+ 60	+ 110	+ 100	+ 230	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 560**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 170
	3	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 920**	- 10	+ 40	+ 90	+ 80	+ 190	+ 60	+ 70	- 110
	3	16	**2 060**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 860**	- 20	+ 50	N/A	+ 110	+ 240	+ 100	+ 140	- 230
	3	10	**2 190**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 160
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 130**	- 20	+ 40	+ 100	+ 80	+ 220	+ 80	+ 100	- 150
	3	16	**2 290**	- 20	+ 40	+ 110	+ 90	+ 220	+ 80	+ 110	- 170

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 690**	- 40	+ 90	N/A	+ 210	+ 450	+ 170	+ 280	- 400
	3	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 380	+ 140	+ 200	- 220
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 510**	- 30	+ 70	+ 160	+ 140	+ 360	+ 130	+ 170	- 200
	3	16	**2 770**	- 30	+ 80	+ 140	+ 160	+ 390	+ 120	+ 190	- 250

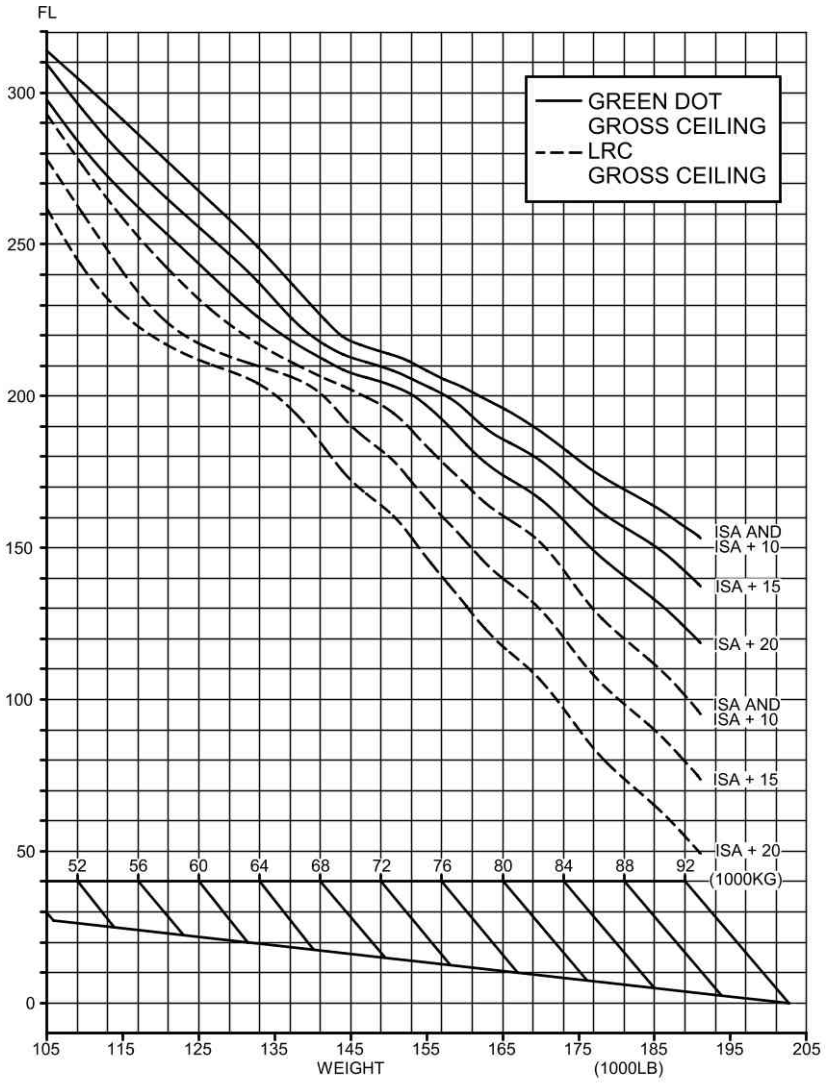
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**5 030**	- 50	+ 90	N/A	+ 230	+ 580	+ 190	+ 910	- 860
	3	10	**3 790**	- 40	+ 80	+ 160	+ 180	+ 530	+ 150	+ 720	- 600
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 630**	- 30	+ 80	+ 150	+ 170	+ 520	+ 150	+ 650	- 540
	3	16	**3 940**	- 40	+ 80	+ 150	+ 180	+ 530	+ 150	+ 720	- 620

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-1 300 ft	-1 400 ft	-1 400 ft
	TOTAL ANTI ICE ON	-2 800 ft	-2 800 ft	-2 800 ft	-3 000 ft
GREEN DOT	ENGINE ANTI ICE ON	-1 000 ft	-1 000 ft	-1 100 ft	-1 200 ft
	TOTAL ANTI ICE ON	-2 100 ft	-2 100 ft	-2 300 ft	-2 500 ft

Note: For weights 85 000 kg or 187 400 lb, one engine ceilings at Long Range speed may be overestimated by FMS Legacy. In this case, ceiling values provided in the above graph should be retained.

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL(1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50				174 32 198 .9 31700	228 42 200 1.1 31800	262 47 202 1.3 31900	288 52 204 1.3 31900
54			156 29 202 .9 30100	222 41 204 1.2 30200	258 47 206 1.4 30300	285 52 208 1.5 30300	308 55 210 1.5 30400
58		152 29 206 .9 28200	231 43 208 1.3 28500	269 50 210 1.5 28600	298 54 212 1.7 28600	320 58 214 1.7 28700	339 61 216 1.8 28700
62		236 45 212 1.5 26400	279 52 214 1.7 26600	309 57 216 1.8 26600	333 61 218 1.9 26700	352 64 220 2.0 26700	369 67 222 2.1 26800
66	155 30 214 1.1 24200	281 53 218 1.8 24600	314 59 220 2.0 24600	339 63 222 2.1 24700	360 67 224 2.2 24700	378 69 226 2.3 24800	393 71 228 2.3 24800
70	231 45 220 1.7 22600	311 59 224 2.1 22800	335 63 226 2.2 22800	357 67 228 2.3 22900	376 70 230 2.4 22900	392 72 232 2.5 22900	406 74 234 2.5 23000
74	214 41 226 1.6 21300	278 53 230 2.0 21400	301 56 232 2.1 21400	321 60 234 2.2 21500	339 62 236 2.2 21500	354 65 238 2.3 21500	
78	212 40 232 1.6 20500	264 49 236 1.9 20600	283 52 238 2.0 20600	301 55 240 2.1 20600	316 57 242 2.2 20600	330 60 244 2.2 20600	
82	242 46 238 1.9 19600	282 52 242 2.1 19700	298 55 244 2.2 19700	313 57 246 2.3 19700	326 59 248 2.3 19800		
86	278 52 244 2.3 18400	317 58 248 2.5 18400	332 61 250 2.6 18500	346 63 252 2.6 18500	359 65 254 2.7 18500		
90	300 56 250 2.6 17100	335 61 254 2.7 17200	349 64 256 2.8 17200	363 66 258 2.9 17200			
94	317 59 256 2.8 15900	350 64 260 3.0 15900	363 66 262 3.0 16000	375 67 264 3.1 16000			

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 15 %	+ 12 %	+ 18 %	- 200 FT
TOTAL ANTI ICE ON	+ 20 %	+ 24 %	+ 33 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.181 .442 1972 244	1.250 .480 1915 241	1.319 .507 1856 236	1.369 .530 1874 237	1.417 .549 1870 236	1.472 .571 1875 236
54	1.199 .454 2093 251	1.281 .494 2047 249	1.363 .529 2029 246	1.411 .548 2028 246	1.464 .569 2032 245	1.520 .588 2034 243
58	1.223 .466 2224 258	1.310 .506 2174 255	1.402 .546 2185 255	1.454 .567 2190 254	1.510 .587 2196 253	1.554 .591 2138 244
62	1.253 .484 2387 268	1.344 .521 2330 263	1.441 .562 2343 262	1.497 .583 2354 262	1.536 .585 2277 252	1.568 .551 2121 227
66	1.278 .495 2519 274	1.380 .538 2499 272	1.480 .578 2504 270	1.534 .595 2503 267	1.548 .548 2252 235	
70	1.303 .506 2651 280	1.412 .552 2651 278	1.517 .591 2667 277	1.547 .578 2519 260		
74	1.327 .515 2785 286	1.446 .567 2818 286	1.549 .600 2811 281	1.562 .528 2482 236		
78	1.359 .531 2968 295	1.478 .579 2979 293	1.557 .577 2795 270			
82	1.385 .543 3124 301	1.510 .592 3146 299	1.574 .523 2758 243			
86	1.412 .554 3282 308	1.519 .580 3163 293				
90	1.440 .567 3449 315	1.529 .559 3158 282				
94	1.456 .569 3540 316	1.549 .512 3139 258				
ENGINE ANTI ICE ON △FUEL = + 2 %				TOTAL ANTI ICE ON △FUEL = + 4 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1510 0.46	1317 0.44	1180 0.42	1131 0.41	1083 0.41	1061 0.41	9	7	6
300	2259 1.06	2008 1.03	1826 0.59	1762 0.58	1699 0.57	1670 0.58	15	14	13
400	3004 1.27	2694 1.22	2468 1.17	2388 1.15	2312 1.14	2276 1.15	21	20	20
500	3745 1.47	3377 1.41	3106 1.34	3010 1.32	2921 1.31	2877 1.32	27	27	27
600	4481 2.08	4055 2.00	3739 1.52	3628 1.49	3527 1.48	3475 1.49	34	34	34
700	5212 2.28	4729 2.19	4369 2.10	4241 2.07	4129 2.04	4069 2.05	40	40	41
800	5938 2.49	5400 2.39	4994 2.28	4851 2.24	4727 2.21	4659 2.22	46	47	48
900	6659 3.10	6066 2.58	5615 2.46	5456 2.41	5320 2.38	5247 2.38	52	53	54
1000	7376 3.31	6728 3.17	6232 3.04	6058 2.59	5907 2.55	5831 2.55	58	60	61
1100	8088 3.52	7387 3.37	6845 3.22	6656 3.16	6490 3.12	6413 3.11	63	66	68
1200	8798 4.13	8042 3.56	7454 3.41	7250 3.34	7070 3.29	6991 3.28	69	73	74
1300	9506 4.34	8693 4.16	8059 3.59	7840 3.52	7645 3.46	7566 3.44	75	79	81
1400	10209 4.55	9340 4.36	8661 4.17	8427 4.10	8217 4.03	8137 4.00	81	86	87

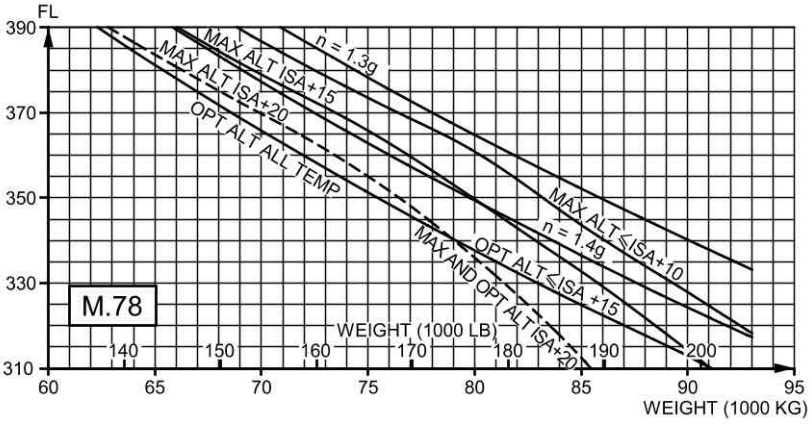
ENGINE ANTI ICE ON
△FUEL = + 2 %

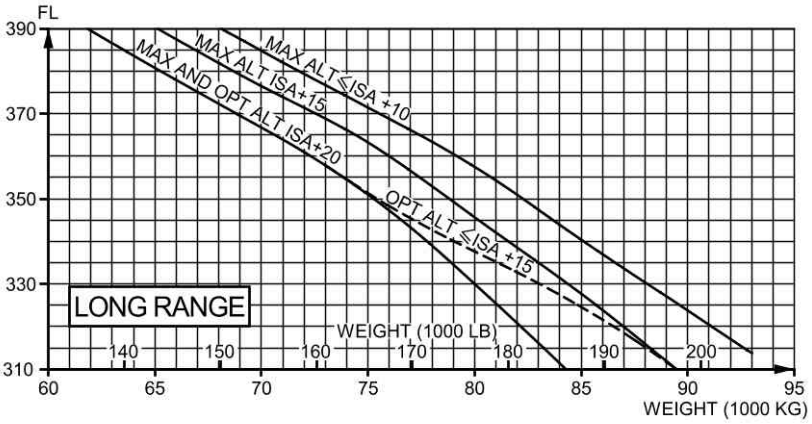
TOTAL ANTI ICE ON
△FUEL = + 4 %

FLIP23 A321-131 IAE V2530-A5 3610 03301.001011 0250300 .7801 .000100 140 0300350 60 0 100100 40100 18590 CL-N0-04-07-150

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES





CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 500 ft Opt ALT :- 300 ft	Max ALT : -1 100 ft Opt ALT : - 300 ft
ISA +15	Max ALT : - 700 ft Opt ALT : - 300 ft	Max ALT : -1 500 ft Opt ALT : - 600 ft
ISA +20	Max ALT : -1 000 ft Opt ALT : -1 000 ft	Max ALT : -2 300 ft Opt ALT : -2 300 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 – DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 65000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	290	**310**	**330**	**350**	**370**	**390**	**FL290 FL310**	**FL330 FL350**	**FL370 FL390**
200	1037 0.36	978 0.36	926 0.36	880 0.36	842 0.36	816 0.36	1	2	4
400	2281 1.02	2158 1.02	2049 1.02	1956 1.03	1885 1.03	1854 1.03	7	10	20
600	3518 1.27	3329 1.28	3164 1.29	3023 1.29	2918 1.30	2875 1.30	13	18	33
800	4747 1.53	4494 1.54	4271 1.55	4081 1.56	3939 1.56	3882 1.56	19	25	45
1000	5970 2.19	5650 2.20	5370 2.22	5131 2.23	4951 2.23	4874 2.23	25	33	57
1200	7185 2.45	6799 2.47	6461 2.48	6171 2.49	5952 2.50	5852 2.50	31	40	67
1400	8393 3.11	7941 3.13	7544 3.14	7204 3.16	6944 3.17	6816 3.17	36	47	77
1600	9596 3.37	9076 3.39	8620 3.41	8228 3.43	7925 3.44	7768 3.44	41	54	86
1800	10792 4.03	10205 4.05	9689 4.07	9244 4.09	8898 4.10	8707 4.10	46	60	94
2000	11983 4.29	11327 4.31	10751 4.34	10254 4.36	9865 4.37	9640 4.37	51	66	102
2200	13167 4.55	12442 4.58	11806 5.00	11256 5.03	10825 5.04	10566 5.04	56	73	110
2400	14345 5.21	13551 5.24	12855 5.26	12251 5.29	11776 5.31	11482 5.31	61	79	117
2600	15518 5.47	14654 5.50	13897 5.53	13239 5.56	12720 5.58	12388 5.58	65	85	125
2800	16685 6.13	15750 6.16	14932 6.19	14220 6.23	13657 6.24	13286 6.24	68	90	131
3000	17851 6.39	16841 6.42	15961 6.46	15195 6.49	14586 6.51	14175 6.51	72	96	138

ECON AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.6 %	△FUEL = + 2 %	△FUEL = + 5 %

FLIP22B A321-131 IAE V2530-A5&610 03301.300211 0250300 .7800 .000200 140 0300350 65 0 100100 40100 18590

CL-NO-CL-004-009-150

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 50 kg/min in the FMGC.

  or
- CI_{LRC} = 70 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	60				80				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.7	173	100	IDLE					241
370	15.9	166	95	IDLE	18.0	186	108	IDLE	252
350	15.2	159	90	IDLE	17.3	179	103	IDLE	264
330	14.6	153	85	IDLE	16.6	173	98	IDLE	277
310	14.0	148	81	IDLE	16.0	167	93	IDLE	289
290	13.5	143	76	IDLE	15.3	161	88	IDLE	300
270	12.8	137	71	IDLE	14.5	154	81	IDLE	300
250	12.1	131	66	IDLE	13.6	146	75	IDLE	300
240	11.7	127	63	IDLE	13.2	143	72	IDLE	300
220	11.0	121	58	IDLE	12.3	135	66	IDLE	300
200	10.2	114	53	IDLE	11.5	127	60	IDLE	300
180	9.5	108	48	IDLE	10.5	119	54	IDLE	300
160	8.7	100	43	IDLE	9.6	110	48	IDLE	300
140	7.9	93	39	IDLE	8.7	101	42	IDLE	300
120	7.1	85	34	IDLE	7.7	92	37	IDLE	300
100	6.3	76	29	IDLE	6.7	81	31	IDLE	300
50	2.4	30	10	IDLE	2.5	32	11	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	ECON AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 1 min	+ 3 min	+ 0.2 %
FUEL	– 2 %	+ 17 %	+ 90 %	+ 0.7 %
DISTANCE	–	+ 4 %	+ 20 %	+ 0.4 %

10B-08FA321-131IAEV2530-A523100000C5KG330001859000-1-350.015.0.00003.780300.000250.0000 FCOM-N0-03-05-30-002-150

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 120 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 100 KG (4MIN)

REF. LDG WT AT DEST. = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	601 0.12						2		
60	775 0.16						4		
80	950 0.20	898 0.19					5		
100	1124 0.23	1056 0.23	1035 0.22				6	6	
120	1299 0.27	1213 0.26	1172 0.26	1172 0.25			7	7	
140	1474 0.31	1371 0.30	1310 0.29	1294 0.28			8	8	
160	1649 0.35	1529 0.33	1447 0.32	1416 0.31	1423 0.31		9	8	10
180	1825 0.39	1687 0.37	1585 0.35	1539 0.35	1536 0.34	1547 0.33	10	9	12
200	2000 0.43	1845 0.40	1723 0.38	1662 0.38	1650 0.36	1654 0.36	11	10	13
220	2176 0.46	2003 0.44	1860 0.42	1784 0.41	1763 0.39	1761 0.39	12	10	14
240	2352 0.50	2161 0.47	1998 0.45	1907 0.44	1877 0.42	1869 0.41	13	11	15
260	2529 0.54	2320 0.50	2136 0.48	2030 0.47	1991 0.45	1976 0.44	15	12	16
280	2705 0.58	2479 0.54	2274 0.51	2153 0.50	2105 0.48	2084 0.47	16	13	17
300	2882 1.02	2638 0.57	2413 0.54	2277 0.53	2220 0.51	2192 0.50	17	13	18
320	3059 1.05	2797 1.01	2551 0.58	2400 0.57	2334 0.54	2300 0.53	18	14	20
340	3236 1.09	2956 1.04	2689 1.01	2524 1.00	2449 0.57	2408 0.55	19	15	21
360	3414 1.13	3115 1.07	2828 1.04	2647 1.03	2563 1.00	2516 0.58	20	16	22
380	3591 1.17	3275 1.11	2966 1.07	2771 1.06	2678 1.03	2625 1.01	21	16	23
400	3769 1.21	3435 1.14	3105 1.10	2895 1.09	2793 1.06	2733 1.04	22	17	24
420	3947 1.24	3594 1.18	3243 1.14	3019 1.12	2908 1.09	2842 1.06	23	18	25
440	4125 1.28	3754 1.21	3382 1.17	3143 1.15	3023 1.12	2951 1.09	25	19	26
460	4304 1.32	3915 1.24	3521 1.20	3267 1.18	3138 1.15	3060 1.12	26	20	27
480	4482 1.35	4075 1.28	3660 1.23	3392 1.21	3253 1.18	3169 1.15	27	20	28
500	4661 1.39	4235 1.31	3799 1.26	3516 1.25	3369 1.21	3278 1.18	28	21	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 4 %	△FUEL = + 6 %

CL-N0-04-13-155

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 140 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

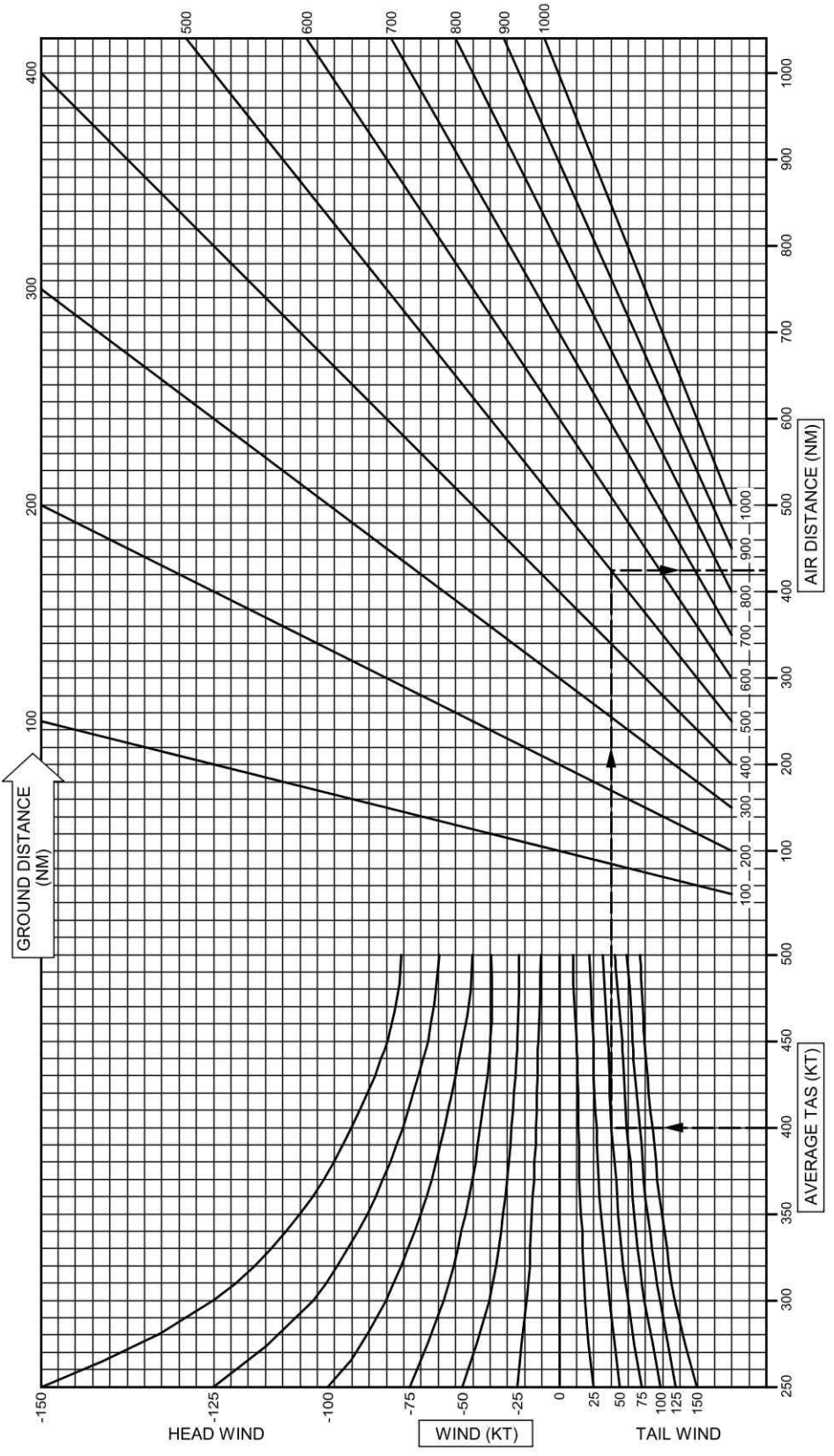
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	65	70	75	80	85	90	95
40	337 0.15	339 0.15	342 0.15	347 0.15	353 0.15	361 0.15	370 0.15
60	515 0.18	523 0.18	531 0.18	540 0.18	551 0.18	561 0.18	571 0.18
80	693 0.22	706 0.22	719 0.21	733 0.21	748 0.21	761 0.21	773 0.21
100	871 0.26	890 0.25	908 0.25	926 0.24	945 0.24	960 0.24	975 0.24
120	1048 0.30	1073 0.29	1096 0.28	1119 0.28	1141 0.27	1160 0.27	1176 0.27
140	1226 0.33	1256 0.32	1284 0.31	1312 0.31	1338 0.30	1359 0.30	1378 0.30
160	1403 0.37	1438 0.36	1472 0.35	1504 0.34	1534 0.33	1559 0.33	1580 0.33
180	1580 0.41	1621 0.39	1659 0.38	1696 0.37	1731 0.36	1758 0.36	1782 0.36
200	1757 0.45	1803 0.43	1846 0.42	1888 0.41	1927 0.39	1957 0.39	1984 0.39
220	1933 0.48	1985 0.46	2034 0.45	2080 0.44	2123 0.43	2156 0.42	2185 0.42
240	2110 0.52	2167 0.50	2221 0.48	2271 0.47	2319 0.46	2355 0.45	2387 0.45
260	2286 0.56	2349 0.53	2407 0.52	2463 0.51	2515 0.49	2554 0.48	2589 0.48
280	2462 1.00	2530 0.57	2594 0.55	2654 0.54	2710 0.52	2753 0.51	2791 0.51
300	2637 1.04	2711 1.00	2780 0.58	2845 0.57	2906 0.55	2952 0.54	2993 0.54
320	2813 1.07	2892 1.04	2967 1.02	3036 1.00	3101 0.59	3150 0.57	3195 0.57
340	2988 1.11	3073 1.07	3153 1.05	3227 1.04	3296 1.02	3349 1.00	3397 1.00
360	3164 1.15	3254 1.11	3339 1.09	3417 1.07	3491 1.05	3547 1.03	3599 1.03
380	3339 1.19	3434 1.15	3524 1.12	3608 1.10	3686 1.08	3745 1.05	3800 1.05
400	3513 1.23	3615 1.18	3710 1.15	3798 1.14	3881 1.12	3943 1.08	4001 1.08
420	3688 1.26	3795 1.22	3895 1.19	3988 1.17	4076 1.15	4141 1.11	4202 1.11
440	3862 1.30	3975 1.25	4080 1.22	4177 1.20	4270 1.18	4339 1.14	4402 1.14
460	4037 1.34	4154 1.29	4265 1.26	4367 1.24	4465 1.22	4537 1.17	4603 1.17
480	4211 1.38	4334 1.33	4450 1.29	4557 1.27	4659 1.25	4735 1.20	4803 1.20
500	4384 1.42	4513 1.36	4635 1.33	4746 1.30	4853 1.28	4932 1.23	5003 1.23
520	4558 1.46	4692 1.40	4819 1.36	4935 1.34	5047 1.32	5130 1.26	5203 1.26
540	4732 1.49	4871 1.43	5003 1.40	5124 1.37	5241 1.35	5327 1.29	5403 1.29

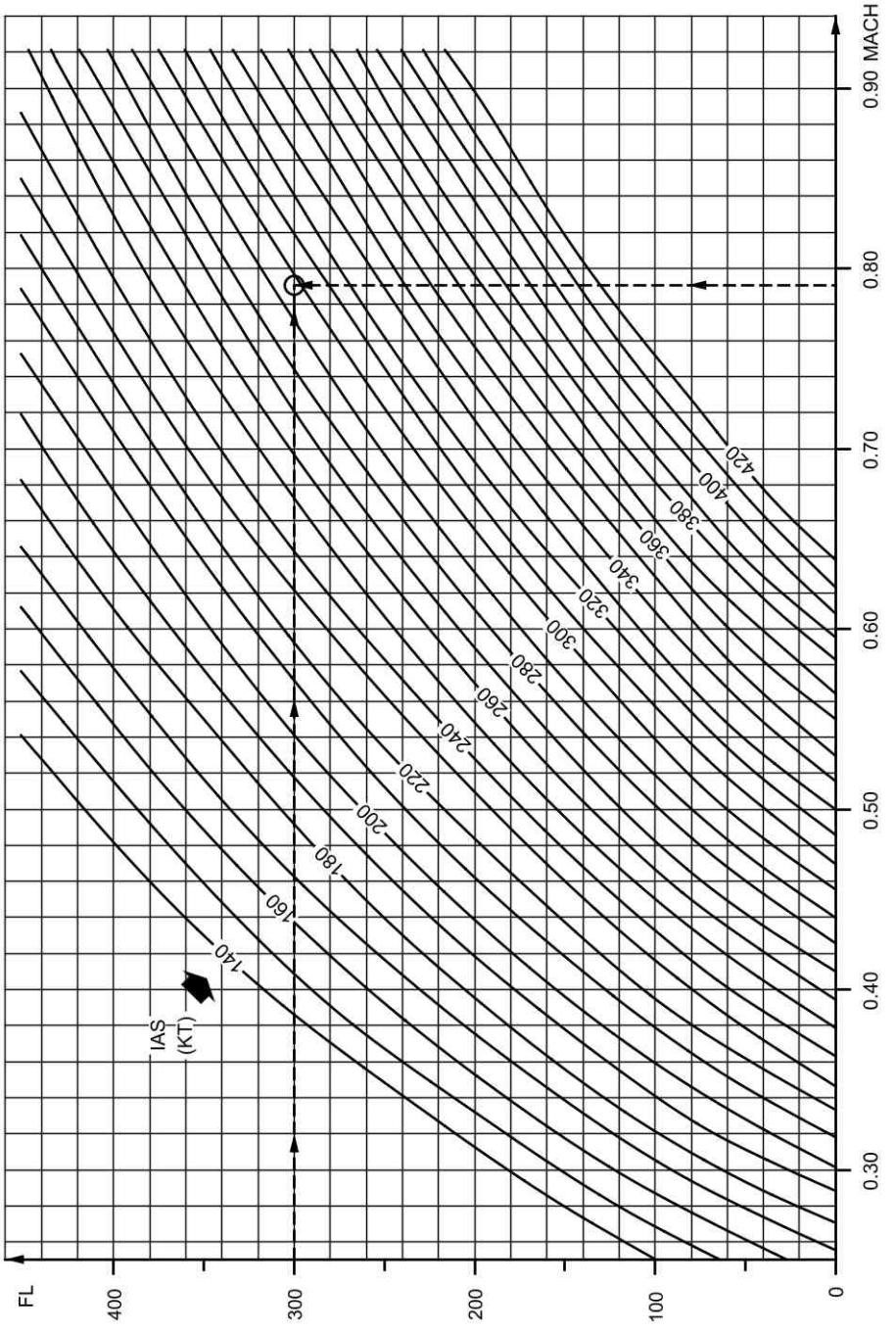
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = − 2 %	△FUEL = + 3 %	△FUEL = + 5 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

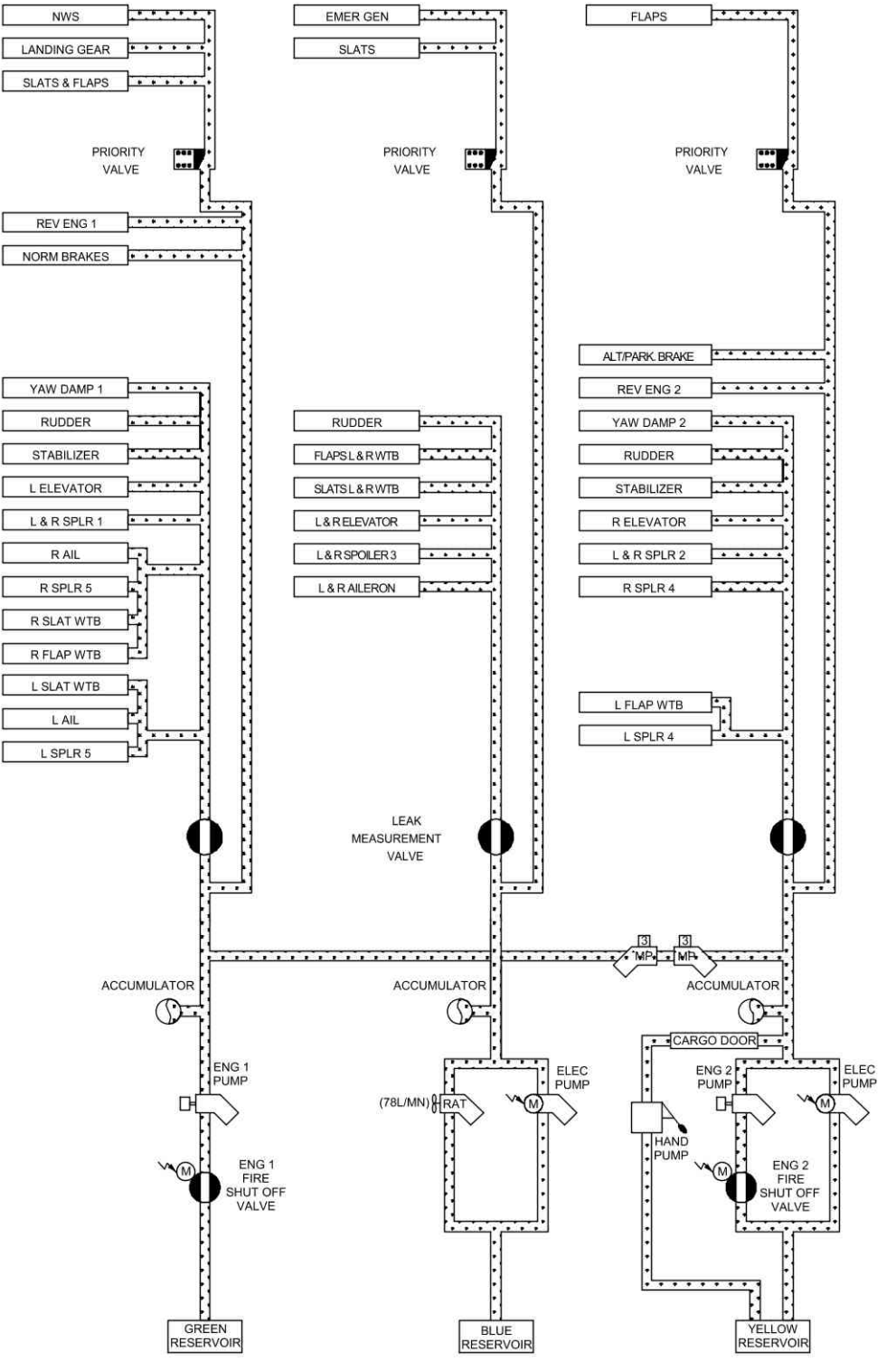
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)										
		54	58	62	66	70	74	78	82	86	90	94
		N1 %										
390	**0.76**	79.4	80.6	-	-	-	-	-	-	-	-	-
370	**0.76**	77.9	78.9	80.0	81.2	-	-	-	-	-	-	-
350	**0.76**	77.2	77.9	78.8	79.7	80.7	-	-	-	-	-	-
330	**0.76**	76.9	77.6	78.2	79.0	79.8	80.7	81.6	-	-	-	-
310	**0.76**	76.7	77.3	77.9	78.5	79.2	79.9	80.6	81.5	82.4	-	-
290	**0.76**	76.7	77.2	77.7	78.2	78.8	79.4	80.0	80.6	81.4	82.1	83.0
270	**300**	76.2	76.6	77.0	77.5	78.0	78.5	79.1	79.6	80.3	80.9	81.6
250	**300**	75.0	75.4	75.8	76.2	76.7	77.1	77.7	78.2	78.9	79.5	80.2
200	**300**	72.2	72.5	72.9	73.3	73.7	74.2	74.7	75.2	75.8	76.4	77.0
150	**270**	65.5	65.9	66.5	67.0	67.7	68.4	69.2	70.3	71.0	71.8	72.6
100	**270**	62.5	62.9	63.5	64.0	64.6	65.3	66.0	66.8	67.6	68.4	69.2
50	**270**	59.1	59.5	60.0	60.5	61.1	61.8	62.6	63.4	64.2	65.0	65.7

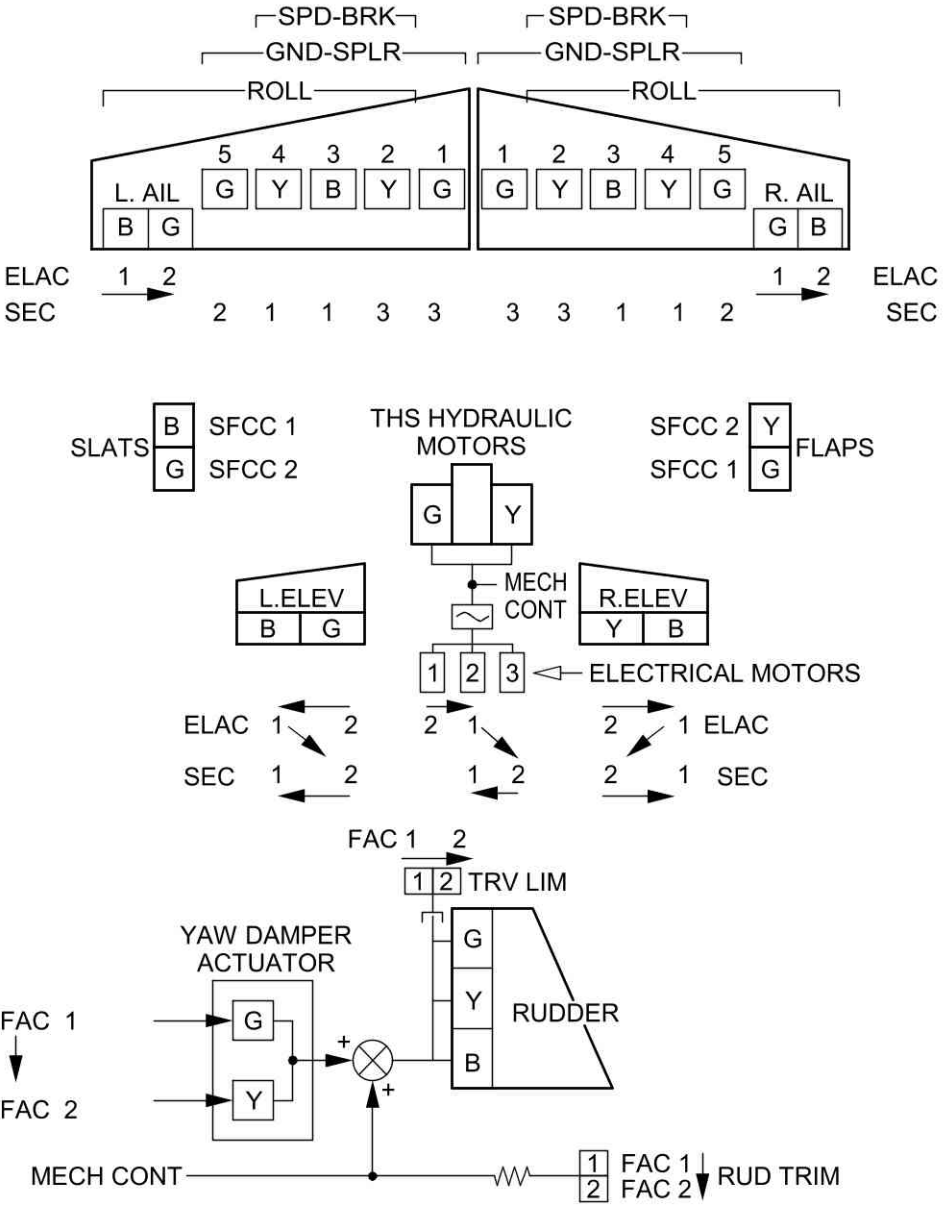
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTG**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTG**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HTG**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HTG**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTG**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTG**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTG**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTG**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTG**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTG**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTG**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTG**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTG**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTG**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTG**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTG**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HTH

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HTH**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HTH**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HTH**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HTH**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTH**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HTH**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HTH**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HTH**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTH** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	1984	HDA 0151	B-HTH	321-231

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	K2113		30 AUG 10	FUSELAGE - REAR FUSELAGE SECTION 16A - DEFINE A321 BASIC STRUCTURE
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P3341		30 AUG 10	LANDING GEAR - WHEELS AND BRAKES - INSTALL MESSIER GOODRICH WHEELS AND BRAKES ON A321
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	J2153		30 AUG 10	FUEL-CERTIFICATION OF FUEL SYSTEM- (LOW PRESSURE SYSTEM) FOR THE OPERATION 0 TO 2 ACTS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0070		30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K7727		30 AUG 10	EQUIPMENT/FURNISHINGS - MISCELLANEOUS EMERGENCY EQPT - INSTALL AN HONEYWELL ELT WITH CONTROL PANEL IN COCKPIT
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: *Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.*

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF..... 27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03
ACT UNUSABLE PROC..... 28.06

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

[7] ABN-32 Landing Gear

■ LOSS OF BRAKING ■..... 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
■ EGPWS ALERTS ■..... 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
■ TCAS WARNINGS ■..... 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ■ ENG DUAL FAILURE - FUEL REMAINING ■..... 70.01
[9] ■ ENG DUAL FAILURE - NO FUEL REMAINING ■..... 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] ABN-80 Miscellaneous

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
■ Ditching ■..... 80.03
■ Forced Landing ■..... 80.04
■ EMER Descent ■..... 80.05
OVERWEIGHT LANDING..... 80.06
■ Stall Recovery ■..... 80.07
■ Stall Warning at Lift-Off ■..... 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
11 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	Add of HF 1
			The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	1	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	4	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	9	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG RELIGHT (in flight)	70.03	1	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	2	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.

Localization Title	Page	ID	Reason
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
	AFT CRG ISOL VALVE	Norm	Inop	Inop
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
HYD	FIRE VALVES	Norm	Norm	Norm
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK USABLE BY GRAVITY: 2 t (4 400 lb) UNUSABLE
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  ECON FLOW..... OFF

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 or MEA**

  APU MASTER SW (if in ELEC EMER CONF).....ON
  PACK 1+2..... OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

- **If smoke continues:**

PACK 1.....ON
PACK 2.....OFF

- **If smoke still continues:**

PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

- **If smoke continues:**

EMER EXIT LIGHT.....ON
COMMERCIAL.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

- **If smoke still continues or if faulty equipment confirmed isolated:**

COMMERCIAL.....NORM

SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">215 kt</td><td rowspan="3">195 kt</td><td>190 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">190 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">215 kt</td><td>215 kt</td><td>195 kt</td><td>190 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">190 kt</td><td>190 kt</td><td>190 kt</td><td>190 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3

FOR APPROACH

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON
CTR TK L+R XFR..... OFF

- **On the lighter side:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS..... ON
  CTR TK L+R XFR.....ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- A tank is overflowing (due to pipe rupture in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each wing tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK L+R XFR..... OFF

Each engine is fed via its associated wing tank only.

WING TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each wing tank.

■ CASE 1 : IF ONE WING TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the wing tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  CTR TK L+R XFR..... ON
  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The wing tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER
CTR TK XFR (non-leaking side).....ON

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ CASE 2 : IF BOTH WING TANKS DEPLETE AT A SIMILAR RATE:

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**
  APU (if ON).....OFF
  This prevents additional fuel loss through the APU feeding line.
- **When fuel quantity in one wing tank is less than 3 t (6 600 lb):**
  CTR TK L+R XFR..... ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

Intentionally left blank

Intentionally left blank

ACT UNUSABLE PROC

ACT..... AUTO

This stops the pump dry running.

Intentionally left blank

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

1

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**

    Decrease pitch attitude and accelerate.

  - **When speed is above VLS, and vertical speed is positive:**

    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**

  Adjust the flight path or initiate a go-around.

- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**

  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.

- **“SINK RATE” “DON’T SINK”:**

  Adjust pitch attitude and thrust to silence the alert.

- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**

  Perform a go-around.

- **“GLIDE SLOPE”:**

  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an “H” may be written on the “5” key:

■ **If “H” is written on the “5” key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If “H” is not written on the “5” key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
“HDG–ATT MODE” will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	F	4.0 / 70.7	4.0 / 66.4	4.0 / 61.5
2	F	7.0 / 68.9	7.0 / 64.6	7.0 / 59.9
1 + F	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
1	S	7.5 / 65.5	7.5 / 61.4	7.5 / 56.5
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

4 ## WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	270 kt	8.5 / CLB	9.0 / CLB	10.0 / CLB
FL 50 - FL 100		8.0 / CLB	8.0 / CLB	9.0 / CLB
FL 100 - FL 150		7.0 / CLB	7.0 / CLB	8.0 / CLB
FL 150 - FL 200		6.0 / CLB	6.0 / CLB	6.5 / CLB
FL 200 - FL 250	300 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
FL 250 - FL 280		3.5 / CLB	3.0 / CLB	3.0 / CLB
Above FL 280	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

7 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Above FL 280	M 0.76	-1.0 / IDLE	-1.5 / IDLE	-2.0 / IDLE
FL 280 - FL 200	300 kt	-0.5 / IDLE	-1.5 / IDLE	-2.5 / IDLE
FL 200 - FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-1.5 / IDLE
Below FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-2.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.0 / IDLE	2.0 / IDLE

8 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.0 / 63.4	5.0 / 59.4	5.0 / 54.6
1	S	7.5 / 65.6	7.5 / 61.4	7.5 / 56.6
1 + F (1)	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
2	F	7.0 / 68.5	7.0 / 64.7	7.0 / 59.9
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	4.0 / 74.8	4.0 / 71.0	4.0 / 65.8

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

9

FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	2.0 / 60.0	2.0 / 56.0	1.5 / 51.6

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 60 000 kg/132 000 lb	*-2.5*
70 000 kg/154 000 lb	*-1.5*
80 000 kg/176 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.4 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
94	*251*	*261*	*271*
92	*248*	*258*	*268*
88	*242*	*252*	*262*
86	*239*	*249*	*259*
84	*236*	*246*	*256*
82	*233*	*243*	*253*
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS..... ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR..... ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 and L/G DOWN) will be approximately 1.1 nm per 1 000 ft (with no wind).*

BARO..... SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK.....ON

  ATC.....NOTIFY

  FIRE pushbutton (ENG and APU).....PUSH

  AGENTS (ENG and APU).....DISCH

  Engine Agent 2 is not available.

  - **If Evacuation required:**

    EVACUATION.....INITIATE

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

ELT ⩤ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 160 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**
L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU)..... PUSH
AGENT (ENG and APU)..... DISCH
Engine Agent 2 is not available.
EVACUATION..... INITIATE
ELT ⩤ ..... CHECK EMITTING
If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....240 KT/GREEN DOT

Initially, fly 240 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⋘ /ATC1.....USE
ATC..... NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT..... PREPARE
SIGNS.....ON
COMMERCIAL.....OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3; L/G DOWN), will be approximately 1.1 N/m per 1 000 ft (with no wind).*

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....160 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt.

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**
    GRAVITY GEAR EXTN handcrank.....PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard ″USE MAN PITCH TRIM″ on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**
    L/G lever.....DOWN
    APPROACH SPEED.....ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

GND SPLR.....ARM
MAX BRK PR.....1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**
  PARKING BRK.....ON
  ATC.....NOTIFY
  - **If Evacuation required :**
    EVACUATION.....INITIATE
    ELT ⩤.....CHECK EMITTING
    If not, switch on the transmitter

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

■ **If Evacuation not required :**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY

EVACUATION..... INITIATE

ELT ⋖ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

1 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

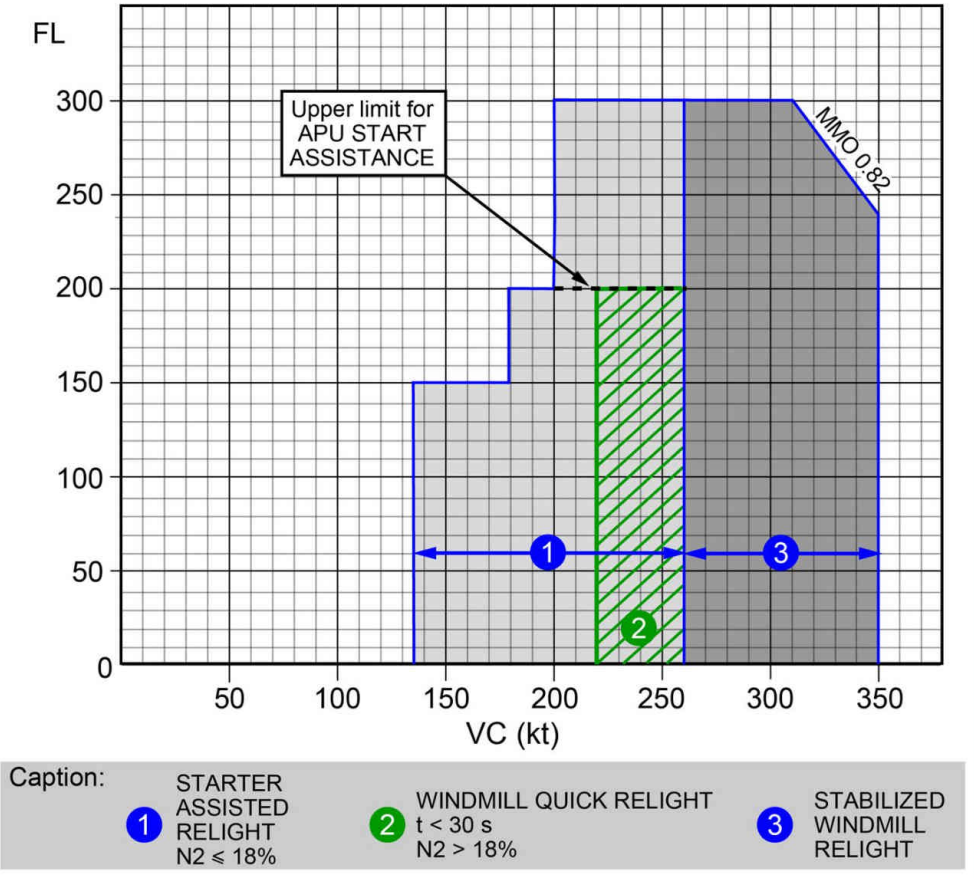
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



Caption:

1 STARTER ASSISTED RELIGHT N2 ≤ 18%

2 WINDMILL QUICK RELIGHT t < 30 s N2 > 18%

3 STABILIZED WINDMILL RELIGHT

ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

2

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	76	74	71	68	64	61	58	54
5	76	74	71	68	64	61	56	52
10	76	74	71	68	64	59	54	
15	76	74	71	67	61	57	52	
20	76	74	69	64	59	54		
25	76	71	66	61	56			
30	73	68	64	59	54			
35	69	65	61	57	52			
40	66	62	59	55				
45	63	60	57					
50	60	57						
55	57							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

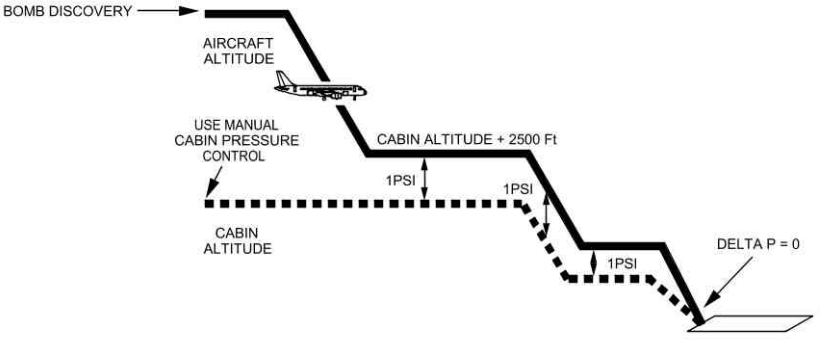
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

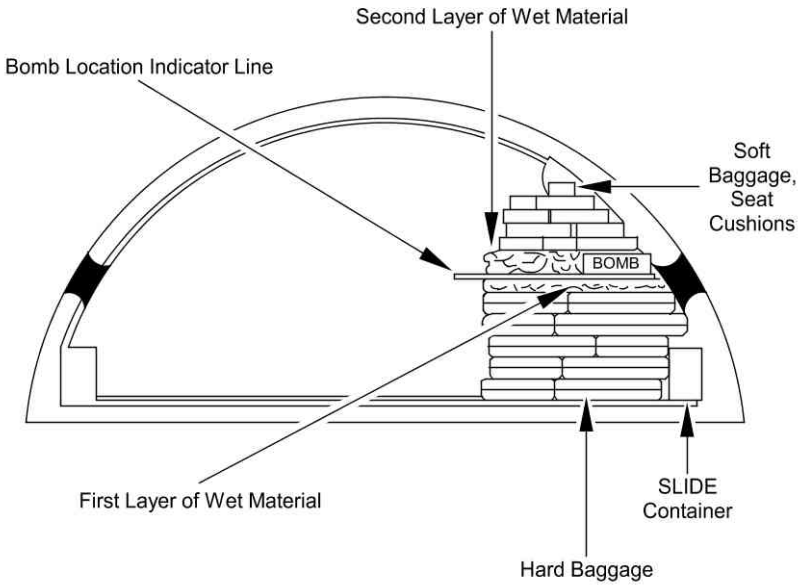
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.

CABIN and COCKPIT.....PREPARE

Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET

Omit the normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON

Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING

If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR..... OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever..... DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR..... 1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⋘ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: At very high weights, VFE CONF1 is close to VLS clean. To select CONF1, deselect A/THR, decelerate to (or slightly below) VLS and select CONF1 when below VFE. When established at CONF1, the crew can re-engage the A/THR and use managed speed again

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	92	88	82	76	70	65	60	55
15	92	88	82	76	70	65	60	55
20	92	88	82	76	70	65	60	55
25	92	87	80	75	69	64	59	
30	92	85	79	73	68			
35	88	82	76	70	65			
40	85	79	73	68				
45	82	75	70					
50	78	72						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
ECON FLOW.....OFF

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to the QRH ABN 34 Unreliable Speed Indication / ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost, Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure*.
	Fuel temp greater than 45 °C in wing tank	GALLEY (OFF)
	Fuel temp lower than -40 °C in wing tank	Consider descending to a lower altitude, and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G01 on 49VU, M06 on 121VU. G02 on 49VU, M07 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M06, M07, G01, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M07 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M06 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M07, G02 - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁❄) of the FAP` in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication	FQIC	**On ground, or in flight:** - Pull the C/B of the affected channel: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) - Wait 5 s, before pushing the C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- *Record BSCU reset in the logbook*

32	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *If during taxi, when the aircraft is moving, WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT ECAM alert appears along with the NW STRG DISC memo, the flight crew may attempt to perform only one BSCU reset. If the mentioned alert and memo disappear after this BSCU reset, continue the flight.* *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A321..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A321..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A321	1/2	1	**20 Sep 2012 : Modification of content of the element 20803157.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits:
    - AUTOLAND (HWC30 / TWC10 / XWC20)
    - MANUAL LAND - CAT II (HWC40 / TWC10 / XWC25)
    - OEI ROLLOUT (IDLE REV ONLY XWC15)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

● APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

● APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

● AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

● REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

● DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

● CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

● SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

● PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

● BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

● PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

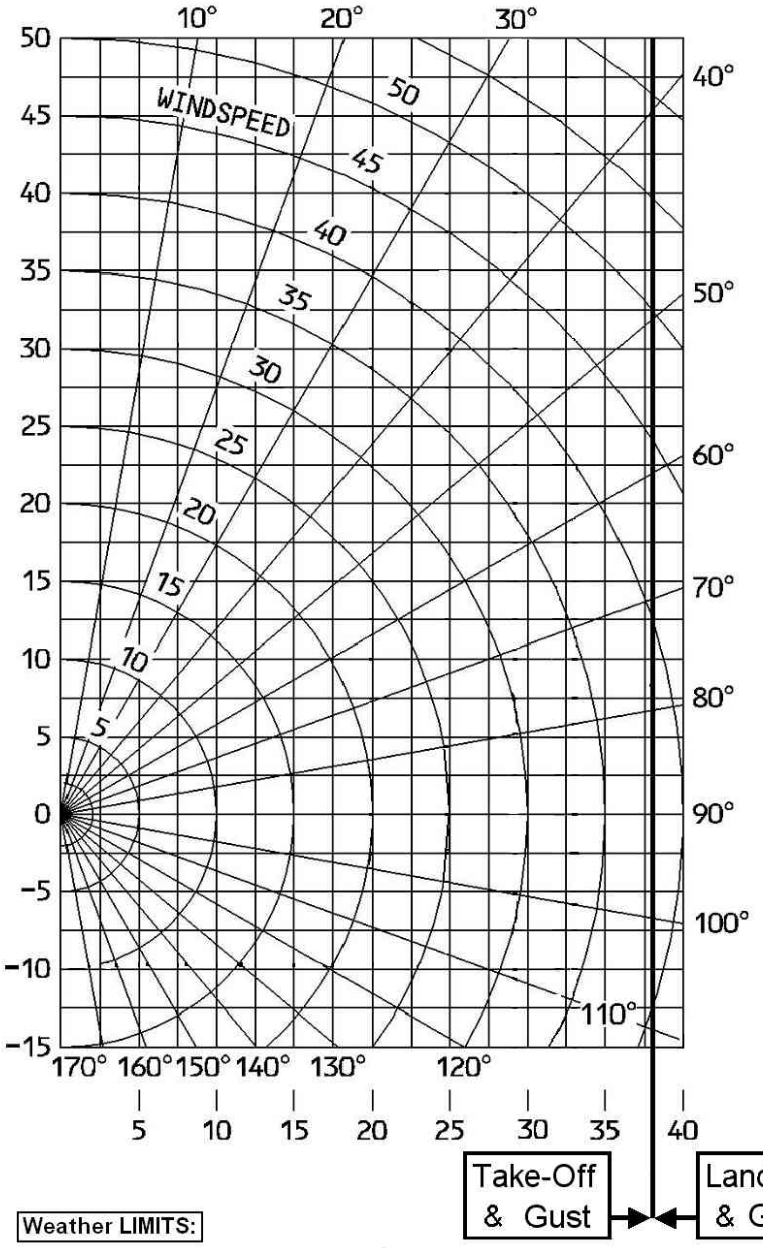
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A321



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind
15 knot x-wind limit for OEI Rollout with IDLE reverse only.

CAT II No Autoland
40 knots headwind
25 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A321

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)					
W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
52	130	168	188	121	116
56	135	174	194	125	121
60	140	180	200	130	125
64	144	186	206	134	129
68	149	192	212	138	133
72	153	197	218	142	137
76	157	203	224	146	141
80	161	208	230	150	144
84	165	213	236	154	148
88	169	218	242	157	151
92	173	223	248	161	155
94	175	226	251	163	157

(1) Above FL 200 add 1 kt per additional 1 000 ft.

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

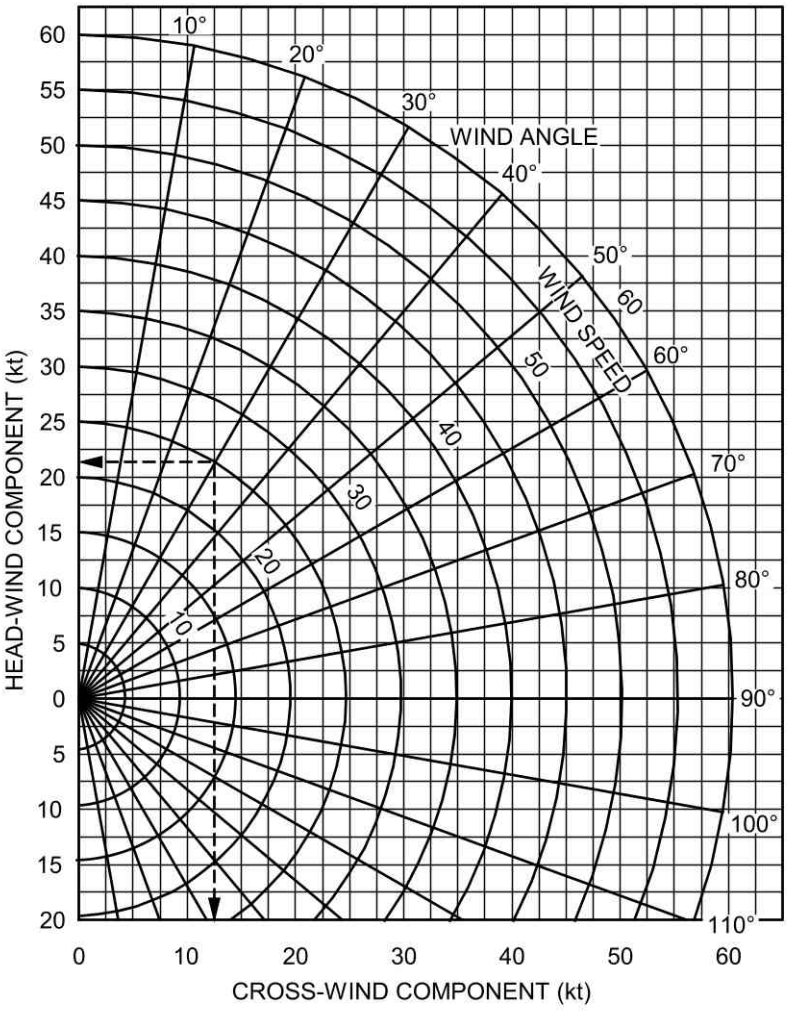
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VLS CONF FULL (kt) (=VREF)	116	119	123	127	131	135	139	143	146	150	153	157
VLS CONF3 (kt)	121	123	128	132	136	140	144	148	152	156	159	163

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 210**	- 10	+ 60	+ 80	+ 50	+ 140	+ 50	+ 30	- 20
AUTOBRAKE MED	**1 480**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 260 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 290**	- 10	+ 60	+ 80	+ 60	+ 160	+ 50	+ 30	- 30
AUTOBRAKE MED	**1 570**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 270 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 520**	- 10	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
AUTOBRAKE MED	**1 560**	- 10	+ 50	+ 110	+ 80	+ 210	+ 70	+ 60	- 20
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 650**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 690**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 40
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 420 m**
Autoland	**+ 330 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 730**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
AUTOBRAKE MED	**1 780**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
AUTOBRAKE LOW	**2 100**	- 20	+ 40	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 450 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 860**	- 10	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
AUTOBRAKE MED	**1 900**	- 10	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 120
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 90	+ 220	+ 80	+ 50	- 10

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 320 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**1 930**	- 10	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 130
AUTOBRAKE MED	**1 970**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 140
AUTOBRAKE LOW	**2 160**	- 20	+ 50	+ 140	+ 80	+ 230	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 430 m**
Autoland	**+ 320 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
Maximum MANUAL	**2 070**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 110	- 150
AUTOBRAKE MED	**2 110**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 160
AUTOBRAKE LOW	**2 310**	- 20	+ 50	+ 140	+ 90	+ 240	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 330 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 210**	- 20	+ 70	+ 170	+ 130	+ 360	+ 120	+ 160	- 160
AUTOBRAKE MED	**2 240**	- 20	+ 70	+ 150	+ 130	+ 370	+ 110	+ 160	- 160
AUTOBRAKE LOW	**2 270**	- 20	+ 70	+ 150	+ 140	+ 370	+ 100	+ 170	- 50

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 390 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 430**	- 30	+ 80	+ 170	+ 150	+ 390	+ 130	+ 180	- 190
AUTOBRAKE MED	**2 460**	- 30	+ 80	+ 150	+ 150	+ 400	+ 120	+ 190	- 190
AUTOBRAKE LOW	**2 480**	- 30	+ 80	+ 170	+ 150	+ 390	+ 120	+ 190	- 70

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 410 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 430**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 440
AUTOBRAKE MED	**3 450**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 450
AUTOBRAKE LOW	**3 480**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 380 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 700**	- 30	+ 70	+ 160	+ 200	+ 580	+ 150	+ 850	- 490
AUTOBRAKE MED	**3 720**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 850	- 510
AUTOBRAKE LOW	**3 750**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 400 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VREF = VLS CONF FULL (kt)	116	119	123	127	131	135	139	143	146	150	153	157

+

ΔVREF
Refer to the applicable Landing Distance table

+

APPRoach CORrection	
ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP
VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)
• If APPR COR > 1/3 Headwind component: Correct the landing distance (**SPD** column) with **SPD = APPR COR** • If APPR COR = 1/3 Headwind component: No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC BUS 2 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 40
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 50
DC BUS 1+2 FAULT	FULL	0	**1 860**	- 20	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6	**2 020**	- 20	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 410**	- 10	+ 50	+ 80	+ 70	+ 170	+ 50	+ 30	- 30
	3	16	**1 490**	- 10	+ 60	+ 90	+ 70	+ 170	+ 50	+ 30	- 40
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 870**	- 10	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6 / 140kt	**2 030**	- 10	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 080**	- 10	+ 80	+ 110	+ 80	+ 210	+ 80	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 70
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 80
DC BUS 2 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 100
	3	6	**2 010**	- 20	+ 70	+ 180	+ 120	+ 280	+ 100	+ 110	- 120
DC BUS 1+2 FAULT	FULL	0	**2 010**	- 20	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6	**2 210**	- 30	+ 80	+ 180	+ 120	+ 300	+ 110	+ 140	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 670**	- 20	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 70
	3	6	**1 820**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 80	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 860**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 90
	3	16	**2 020**	- 20	+ 60	+ 140	+ 110	+ 250	+ 90	+ 80	- 110
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 020**	- 10	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 220**	- 20	+ 80	+ 170	+ 120	+ 300	+ 100	+ 140	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 300**	- 20	+ 80	+ 160	+ 130	+ 300	+ 100	+ 130	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 120
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
DC BUS 2 FAULT	FULL	0	**2 060**	- 20	+ 40	+ 130	+ 90	+ 220	+ 70	+ 110	- 160
	3	6	**2 230**	- 20	+ 40	+ 140	+ 90	+ 230	+ 80	+ 130	- 190
DC BUS 1+2 FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 240**	- 20	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 890**	- 10	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 030**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 070**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 150
	3	16	**2 220**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 170
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 070**	- 10	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6 / 140kt	**2 250**	- 10	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 310**	- 10	+ 60	+ 130	+ 100	+ 230	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
DC BUS 2 FAULT	FULL	0	**2 320**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 160	- 230
	3	6	**2 530**	- 20	+ 50	+ 150	+ 110	+ 270	+ 90	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 340**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 550**	- 20	+ 50	+ 160	+ 110	+ 270	+ 100	+ 190	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 140**	- 20	+ 40	+ 120	+ 90	+ 250	+ 70	+ 130	- 190
	3	6	**2 290**	- 20	+ 40	+ 130	+ 90	+ 250	+ 90	+ 150	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 330**	- 20	+ 40	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	16	**2 490**	- 20	+ 40	+ 120	+ 110	+ 250	+ 90	+ 150	- 240
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 340**	- 10	+ 50	+ 150	+ 100	+ 260	+ 90	+ 170	INOP
	3	6 / 140kt	**2 560**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 190	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 600**	- 10	+ 50	+ 150	+ 110	+ 270	+ 100	+ 180	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 210
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 240
DC BUS 2 FAULT	FULL	0	**2 770**	- 30	+ 90	+ 240	+ 190	+ 470	+ 170	+ 300	- 300
	3	6	**3 160**	- 40	+ 100	+ 260	+ 220	+ 540	+ 160	+ 380	- 390
DC BUS 1+2 FAULT	FULL	0	**2 810**	- 30	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6	**3 200**	- 40	+ 100	+ 270	+ 230	+ 560	+ 170	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 170	+ 440	+ 120	+ 220	- 250
	3	6	**2 770**	- 30	+ 80	+ 200	+ 180	+ 470	+ 140	+ 260	- 290
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 800**	- 30	+ 80	+ 180	+ 180	+ 450	+ 140	+ 250	- 290
	3	16	**3 060**	- 30	+ 80	+ 190	+ 190	+ 470	+ 150	+ 270	- 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 820**	- 10	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6 / 140kt	**3 210**	- 20	+ 100	+ 270	+ 230	+ 570	+ 170	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**3 260**	- 30	+ 100	+ 230	+ 220	+ 510	+ 170	+ 370	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 530
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 590
DC BUS 2 FAULT	FULL	0	**4 470**	- 30	+ 70	+ 220	+ 240	+ 710	+ 190	+ 1 550	- 990
	3	6	**4 980**	- 40	+ 80	+ 240	+ 270	+ 750	+ 200	+ 1 790	- 1 180
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**4 260**	- 30	+ 50	+ 180	+ 190	+ 730	+ 160	+ 2 020	- 1 170
	3	6	**4 570**	- 30	+ 50	+ 190	+ 210	+ 750	+ 180	+ 2 130	- 1 280
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**4 530**	- 30	+ 50	+ 180	+ 210	+ 740	+ 180	+ 2 010	- 1 220
	3	16	**4 860**	- 30	+ 50	+ 180	+ 220	+ 750	+ 190	+ 2 130	- 1 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 290**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 30
	3	6	**1 380**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 430**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
THREE SPLR FAULT	FULL	0	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 40
	3	6	**1 500**	- 10	+ 50	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
ALL SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
GND SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
SEC 1 or SEC 3 FAULT	FULL	0	**1 320**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 50	+ 100	+ 60	+ 150	+ 60	+ 40	- 30
SEC 2 FAULT	FULL	0	**1 270**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 350**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SEC 2+3 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
SEC 1+3 FAULT	FULL	0	**1 460**	- 10	+ 50	+ 110	+ 60	+ 150	+ 50	+ 40	- 50
	3	6	**1 550**	- 10	+ 50	+ 120	+ 70	+ 150	+ 60	+ 50	- 60
SEC 1+2 FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 450**	- 10	+ 50	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
RUDDER JAM	FULL	0	**1 430**	- 10	+ 60	+ 120	+ 90	+ 190	+ 60	+ 50	- 30
	3	6	**1 570**	- 10	+ 70	+ 120	+ 90	+ 200	+ 70	+ 50	- 40
SEC 1+2+3 FAULT	3	10	**1 700**	- 10	+ 50	+ 140	+ 70	+ 160	+ 70	+ 60	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 660**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
	3	6	**1 830**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 920**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 80	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 800**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 80
	3	6	**1 990**	- 20	+ 60	+ 160	+ 120	+ 270	+ 90	+ 100	- 100
THREE SPLR FAULT	FULL	0	**1 890**	- 20	+ 60	+ 170	+ 110	+ 270	+ 90	+ 100	- 90
	3	6	**2 090**	- 20	+ 70	+ 180	+ 130	+ 290	+ 100	+ 120	- 110
ALL SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
GND SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
SEC 1 or SEC 3 FAULT	FULL	0	**1 720**	- 20	+ 60	+ 140	+ 90	+ 240	+ 80	+ 80	- 70
	3	6	**1 870**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 80
SEC 2 FAULT	FULL	0	**1 620**	- 10	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 50
	3	6	**1 770**	- 20	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 70
SEC 2+3 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 100
SEC 1+3 FAULT	FULL	0	**1 990**	- 20	+ 70	+ 190	+ 120	+ 290	+ 100	+ 120	- 130
	3	6	**2 200**	- 20	+ 70	+ 210	+ 140	+ 310	+ 110	+ 150	- 160
SEC 1+2 FAULT	FULL	0	**1 810**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 90
	3	6	**1 960**	- 20	+ 60	+ 160	+ 110	+ 270	+ 100	+ 100	- 110
RUDDER JAM	FULL	0	**1 820**	- 20	+ 60	+ 140	+ 110	+ 270	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 160	+ 130	+ 290	+ 100	+ 110	- 100
SEC 1+2+3 FAULT	3	10	**2 500**	- 30	+ 80	+ 260	+ 160	+ 350	+ 140	+ 210	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 870**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 030**	- 20	+ 40	+ 110	+ 80	+ 200	+ 80	+ 100	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 110**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 020**	- 20	+ 40	+ 130	+ 80	+ 210	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 150
THREE SPLR FAULT	FULL	0	**2 120**	- 20	+ 40	+ 140	+ 90	+ 220	+ 80	+ 120	- 150
	3	6	**2 300**	- 20	+ 40	+ 150	+ 100	+ 230	+ 80	+ 130	- 170
ALL SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
GND SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
SEC 1 or SEC 3 FAULT	FULL	0	**1 940**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
	3	6	**2 080**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 830**	- 10	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 100
	3	6	**1 970**	- 20	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 110
SEC 2+3 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 130	+ 80	+ 210	+ 80	+ 110	- 130
	3	6	**2 220**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 220**	- 20	+ 40	+ 160	+ 100	+ 230	+ 80	+ 140	- 200
	3	6	**2 410**	- 20	+ 50	+ 160	+ 110	+ 240	+ 90	+ 160	- 230
SEC 1+2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 150
	3	6	**2 170**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 110	- 170
RUDDER JAM	FULL	0	**2 040**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 110	- 120
	3	6	**2 220**	- 20	+ 50	+ 130	+ 110	+ 250	+ 90	+ 130	- 150
SEC 1+2+3 FAULT	3	10	**2 690**	- 20	+ 50	+ 200	+ 120	+ 260	+ 110	+ 200	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 090**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 120	- 140
	3	6	**2 280**	- 20	+ 40	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 360**	- 20	+ 40	+ 120	+ 100	+ 240	+ 90	+ 140	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 270**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 180
	3	6	**2 470**	- 20	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 210
THREE SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 200
	3	6	**2 600**	- 20	+ 50	+ 160	+ 120	+ 270	+ 90	+ 190	- 230
ALL SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
GND SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
SEC 1 or SEC 3 FAULT	FULL	0	**2 180**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 330**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 180
SEC 2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 300**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 180
	3	6	**2 500**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 510**	- 20	+ 50	+ 170	+ 110	+ 270	+ 100	+ 200	- 260
	3	6	**2 730**	- 20	+ 50	+ 180	+ 130	+ 280	+ 100	+ 220	- 310
SEC 1+2 FAULT	FULL	0	**2 290**	- 20	+ 50	+ 140	+ 100	+ 250	+ 90	+ 150	- 210
	3	6	**2 440**	- 20	+ 50	+ 140	+ 110	+ 260	+ 90	+ 160	- 220
RUDDER JAM	FULL	0	**2 260**	- 20	+ 50	+ 130	+ 120	+ 280	+ 90	+ 150	- 170
	3	6	**2 470**	- 20	+ 60	+ 130	+ 130	+ 290	+ 90	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**3 060**	- 30	+ 60	+ 230	+ 140	+ 310	+ 120	+ 290	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 450**	- 30	+ 80	+ 160	+ 150	+ 400	+ 110	+ 190	- 170
	3	6	**2 760**	- 30	+ 80	+ 200	+ 170	+ 430	+ 150	+ 250	- 220
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 880**	- 30	+ 80	+ 180	+ 180	+ 440	+ 130	+ 260	- 240
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 690**	- 30	+ 90	+ 210	+ 170	+ 450	+ 150	+ 260	- 220
	3	6	**3 040**	- 30	+ 100	+ 240	+ 200	+ 480	+ 170	+ 340	- 280
THREE SPLR FAULT	FULL	0	**2 890**	- 30	+ 100	+ 260	+ 200	+ 480	+ 160	+ 320	- 260
	3	6	**3 250**	- 40	+ 100	+ 270	+ 230	+ 530	+ 180	+ 410	- 330
ALL SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
GND SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
SEC 1 or SEC 3 FAULT	FULL	0	**2 580**	- 30	+ 80	+ 190	+ 170	+ 430	+ 120	+ 230	- 200
	3	6	**2 810**	- 30	+ 80	+ 200	+ 180	+ 440	+ 150	+ 260	- 230
SEC 2 FAULT	FULL	0	**2 380**	- 30	+ 70	+ 170	+ 140	+ 380	+ 120	+ 180	- 160
	3	6	**2 620**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 220	- 200
SEC 2+3 FAULT	FULL	0	**2 740**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 230
	3	6	**3 110**	- 40	+ 100	+ 250	+ 210	+ 510	+ 160	+ 360	- 300
SEC 1+3 FAULT	FULL	0	**3 070**	- 40	+ 100	+ 280	+ 220	+ 520	+ 170	+ 400	- 360
	3	6	**3 470**	- 40	+ 110	+ 290	+ 260	+ 570	+ 170	+ 510	- 460
SEC 1+2 FAULT	FULL	0	**2 750**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 270
	3	6	**2 990**	- 30	+ 90	+ 220	+ 200	+ 480	+ 160	+ 310	- 310
RUDDER JAM	FULL	0	**2 550**	- 30	+ 90	+ 170	+ 180	+ 430	+ 120	+ 220	- 190
	3	6	**2 820**	- 30	+ 90	+ 190	+ 200	+ 460	+ 140	+ 270	- 240
SEC 1+2+3 FAULT	3	10	**4 000**	- 50	+ 130	+ 370	+ 310	+ 640	+ 230	+ 710	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 720**	- 30	+ 70	+ 170	+ 200	+ 590	+ 150	+ 880	- 500
	3	6	**4 150**	- 40	+ 80	+ 190	+ 220	+ 620	+ 180	+ 1 030	- 600
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**4 270**	- 40	+ 80	+ 180	+ 230	+ 630	+ 170	+ 1 040	- 610
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 120**	- 40	+ 80	+ 200	+ 230	+ 630	+ 170	+ 1 090	- 610
	3	6	**4 580**	- 40	+ 90	+ 230	+ 260	+ 660	+ 190	+ 1 260	- 720
THREE SPLR FAULT	FULL	0	**4 440**	- 40	+ 90	+ 230	+ 250	+ 660	+ 190	+ 1 280	- 700
	3	6	**4 900**	- 40	+ 90	+ 260	+ 280	+ 690	+ 210	+ 1 450	- 810
ALL SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
GND SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
SEC 1 or SEC 3 FAULT	FULL	0	**3 940**	- 30	+ 80	+ 190	+ 210	+ 610	+ 170	+ 990	- 560
	3	6	**4 220**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 060	- 610
SEC 2 FAULT	FULL	0	**3 640**	- 30	+ 70	+ 160	+ 190	+ 590	+ 150	+ 840	- 480
	3	6	**3 930**	- 30	+ 70	+ 170	+ 210	+ 600	+ 160	+ 920	- 540
SEC 2+3 FAULT	FULL	0	**4 220**	- 40	+ 80	+ 210	+ 240	+ 640	+ 170	+ 1 150	- 640
	3	6	**4 680**	- 40	+ 90	+ 240	+ 270	+ 670	+ 200	+ 1 320	- 750
SEC 1+3 FAULT	FULL	0	**4 710**	- 40	+ 90	+ 260	+ 270	+ 690	+ 200	+ 1 450	- 870
	3	6	**5 200**	- 50	+ 100	+ 280	+ 310	+ 720	+ 220	+ 1 660	- 1 030
SEC 1+2 FAULT	FULL	0	**4 240**	- 40	+ 80	+ 220	+ 240	+ 640	+ 180	+ 1 160	- 690
	3	6	**4 490**	- 40	+ 80	+ 210	+ 250	+ 660	+ 190	+ 1 210	- 740
RUDDER JAM	FULL	0	**3 740**	- 40	+ 90	+ 170	+ 230	+ 640	+ 160	+ 880	- 500
	3	6	**4 070**	- 40	+ 90	+ 190	+ 250	+ 660	+ 190	+ 970	- 560
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 160**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 60	- 40
FLAPS<1	SLATS<1	3	45	**2 060**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 50	- 40
	SLATS≥1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 730**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 40
	SLATS≥1	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 630**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 30
	SLATS≥1	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
FLAPS=3	SLATS<1	3	25	**1 600**	- 10	+ 60	N/A	+ 70	+ 170	+ 60	+ 30	- 30
	1≤SLATS≤3	3	10	**1 390**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 320**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	SLATS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS FAULT	FLAPS<1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
	1≤FLAPS<2	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
	2≤FLAPS<3	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
	FLAPS=3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	FLAPS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
SLATS FAULT	SLATS<1	3	25	**1 590**	- 10	+ 50	N/A	+ 70	+ 160	+ 60	+ 40	- 30
	1≤SLATS≤3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 330**	- 10	+ 50	+ 80	+ 60	+ 160	+ 50	+ 30	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 770**	- 30	+ 70	N/A	+ 160	+ 300	+ 130	+ 110	- 140
FLAPS<1	SLATS<1	3	45	**2 650**	- 20	+ 70	N/A	+ 150	+ 290	+ 130	+ 110	- 130
	SLATS≥1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 280**	- 20	+ 60	N/A	+ 130	+ 260	+ 100	+ 90	- 100
	SLATS≥1	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
2≤FLAPS<3	SLATS<1	3	25	**2 150**	- 20	+ 60	N/A	+ 120	+ 250	+ 100	+ 80	- 90
	SLATS≥1	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
FLAPS=3	SLATS<1	3	25	**2 100**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 810**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 760**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
	SLATS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
FLAPS FAULT	FLAPS<1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
	2≤FLAPS<3	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
	FLAPS=3	3	10	**1 800**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	FLAPS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
SLATS FAULT	SLATS<1	3	25	**2 090**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 80
	1≤SLATS≤3	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 800**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
FLAPS<1	SLATS<1	3	45	**2 710**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
	SLATS≥1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
1≤FLAPS<2	SLATS<1	3	30	**2 420**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 150
	SLATS≥1	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
2≤FLAPS<3	SLATS<1	3	25	**2 310**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	SLATS≥1	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
FLAPS=3	SLATS<1	3	25	**2 260**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 140
	1≤SLATS≤3	3	10	**2 010**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 120
	SLATS>3	3	5	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 110
FLAPS>3	1≤SLATS≤3	FULL	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
FLAPS FAULT	FLAPS<1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	1≤FLAPS<2	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
	2≤FLAPS<3	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS=3	3	10	**2 010**	- 20	+ 40	+ 90	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
SLATS FAULT	SLATS<1	3	25	**2 240**	- 20	+ 40	N/A	+ 90	+ 200	+ 70	+ 80	- 120
	1≤SLATS≤3	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 910**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 180**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 260
FLAPS<1	SLATS<1	3	45	**3 080**	- 20	+ 50	N/A	+ 120	+ 270	+ 110	+ 160	- 250
	SLATS≥1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
1≤FLAPS<2	SLATS<1	3	30	**2 730**	- 20	+ 40	N/A	+ 110	+ 250	+ 100	+ 150	- 220
	SLATS≥1	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
2≤FLAPS<3	SLATS<1	3	25	**2 600**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 200
	SLATS≥1	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
FLAPS=3	SLATS<1	3	25	**2 530**	- 20	+ 40	N/A	+ 100	+ 240	+ 90	+ 130	- 190
	1≤SLATS≤3	3	10	**2 260**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	SLATS>3	3	5	**2 160**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
FLAPS>3	1≤SLATS≤3	FULL	10	**2 200**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 120	- 150
	SLATS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
FLAPS FAULT	FLAPS<1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
	1≤FLAPS<2	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
	2≤FLAPS<3	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
	FLAPS=3	3	10	**2 250**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	FLAPS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
SLATS FAULT	SLATS<1	3	25	**2 490**	- 20	+ 40	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150
	SLATS>3	3	5	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 390**	- 40	+ 100	N/A	+ 270	+ 560	+ 230	+ 420	- 480
FLAPS<1	SLATS<1	3	45	**4 240**	- 40	+ 100	N/A	+ 270	+ 560	+ 210	+ 420	- 460
	SLATS≥1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
1≤FLAPS<2	SLATS<1	3	30	**3 520**	- 40	+ 90	N/A	+ 220	+ 500	+ 160	+ 320	- 340
	SLATS≥1	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
2≤FLAPS<3	SLATS<1	3	25	**3 270**	- 30	+ 80	N/A	+ 200	+ 460	+ 160	+ 280	- 300
	SLATS≥1	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
FLAPS=3	SLATS<1	3	25	**3 090**	- 30	+ 80	N/A	+ 180	+ 430	+ 150	+ 240	- 260
	1≤SLATS≤3	3	10	**2 710**	- 30	+ 80	+ 180	+ 160	+ 430	+ 140	+ 220	- 220
	SLATS>3	3	5	**2 580**	- 30	+ 70	+ 180	+ 160	+ 430	+ 120	+ 210	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 410	+ 130	+ 190	- 190
	SLATS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
FLAPS FAULT	FLAPS<1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
	1≤FLAPS<2	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
	2≤FLAPS<3	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
	FLAPS=3	3	10	**2 710**	- 30	+ 80	+ 170	+ 170	+ 430	+ 130	+ 220	- 220
	FLAPS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
SLATS FAULT	SLATS<1	3	25	**3 020**	- 30	+ 80	N/A	+ 170	+ 390	+ 140	+ 210	- 230
	1≤SLATS≤3	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190
	SLATS>3	3	5	**2 530**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 190	- 180

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
1≤FLAPS<2	SLATS<1	3	30	**5 410**	- 30	+ 50	N/A	+ 250	+ 770	+ 210	+ 2 230	- 1 060
	SLATS≥1	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
2≤FLAPS<3	SLATS<1	3	25	**5 080**	- 30	+ 50	N/A	+ 230	+ 750	+ 190	+ 2 100	- 980
	SLATS≥1	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
FLAPS=3	SLATS<1	3	25	**4 750**	- 30	+ 50	N/A	+ 210	+ 730	+ 190	+ 1 880	- 880
	1≤SLATS≤3	3	10	**4 380**	- 30	+ 50	+ 150	+ 200	+ 730	+ 170	+ 1 910	- 820
	SLATS>3	3	5	**4 240**	- 30	+ 50	+ 160	+ 190	+ 720	+ 160	+ 1 900	- 810
FLAPS>3	1≤SLATS≤3	FULL	10	**4 180**	- 20	+ 50	+ 150	+ 190	+ 710	+ 160	+ 1 750	- 760
	SLATS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
FLAPS FAULT	FLAPS<1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
	1≤FLAPS<2	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
	2≤FLAPS<3	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
	FLAPS=3	3	10	**4 370**	- 30	+ 50	+ 160	+ 200	+ 730	+ 170	+ 1 900	- 820
	FLAPS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
SLATS FAULT	SLATS<1	3	25	**4 270**	- 40	+ 70	N/A	+ 220	+ 600	+ 180	+ 860	- 550
	1≤SLATS≤3	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510
	SLATS>3	3	5	**3 790**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 500

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 390**	- 10	+ 50	+ 90	+ 50	+ 130	+ 50	+ 40	- 40
	3	6	**1 490**	- 10	+ 50	+ 90	+ 60	+ 140	+ 50	+ 40	- 50
B SYS LO PR	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
Y SYS LO PR	FULL	0	**1 320**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 890**	- 10	+ 50	N/A	+ 70	+ 150	+ 70	+ 60	- 80
G + Y	3	30	**2 690**	- 20	+ 60	N/A	+ 110	+ 210	+ 90	+ 130	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**1 530**	- 10	+ 60	+ 100	+ 60	+ 160	+ 60	+ 40	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 810**	- 20	+ 60	+ 140	+ 100	+ 250	+ 90	+ 90	- 90
	3	6	**2 010**	- 20	+ 60	+ 160	+ 120	+ 270	+ 100	+ 100	- 120
B SYS LO PR	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 60
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
Y SYS LO PR	FULL	0	**1 730**	- 20	+ 60	+ 140	+ 100	+ 240	+ 80	+ 80	- 70
	3	6	**1 880**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 30	+ 70	N/A	+ 160	+ 320	+ 120	+ 160	- 220
G + Y	3	30	**3 090**	- 30	+ 90	N/A	+ 180	+ 340	+ 140	+ 210	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 100**	- 10	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 150

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 950**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 690**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 140	- 230
G + Y	3	30	**3 020**	- 20	+ 60	N/A	+ 130	+ 250	+ 110	+ 180	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 300**	- 10	+ 40	+ 130	+ 100	+ 230	+ 80	+ 120	- 200

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 170
	3	6	**2 350**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 200
B SYS LO PR	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 140
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 160
Y SYS LO PR	FULL	0	**2 180**	- 20	+ 40	+ 130	+ 90	+ 240	+ 80	+ 130	- 170
	3	6	**2 340**	- 20	+ 40	+ 130	+ 100	+ 250	+ 90	+ 140	- 190
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 020**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 200	- 300
G + Y	3	30	**3 400**	- 30	+ 60	N/A	+ 150	+ 290	+ 120	+ 250	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 580**	- 10	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 160	+ 420	+ 120	+ 220	- 220
	3	6	**2 850**	- 30	+ 90	+ 230	+ 180	+ 440	+ 170	+ 270	- 280
B SYS LO PR	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 180
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 210
Y SYS LO PR	FULL	0	**2 580**	- 30	+ 80	+ 200	+ 170	+ 420	+ 130	+ 230	- 220
	3	6	**2 820**	- 30	+ 90	+ 200	+ 180	+ 440	+ 150	+ 270	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 850**	- 40	+ 110	N/A	+ 250	+ 530	+ 180	+ 420	- 490
G + Y	3	30	**4 380**	- 50	+ 120	N/A	+ 290	+ 560	+ 220	+ 550	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**3 180**	- 30	+ 100	+ 220	+ 210	+ 490	+ 180	+ 350	- 380

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 860**	- 30	+ 70	+ 180	+ 210	+ 610	+ 160	+ 950	- 550
	3	6	**4 310**	- 40	+ 80	+ 200	+ 240	+ 640	+ 180	+ 1 110	- 680
B SYS LO PR	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 520
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 570
Y SYS LO PR	FULL	0	**3 950**	- 30	+ 80	+ 190	+ 220	+ 610	+ 170	+ 990	- 430
	3	6	**4 230**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 070	- 490
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	30	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**4 700**	- 30	+ 90	+ 220	+ 260	+ 670	+ 200	+ 1 250	- 670

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 750**	- 20	+ 60	+ 100	+ 70	+ 190	+ 60	+ 70	- 60
	3	6	**1 880**	- 20	+ 70	+ 100	+ 70	+ 190	+ 70	+ 80	- 70
AUTO BRK FAULT	FULL	0	**1 320**	- 10	+ 50	+ 80	+ 50	+ 140	+ 40	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 80	+ 60	+ 150	+ 50	+ 30	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 800**	- 20	+ 60	+ 110	+ 80	+ 230	+ 70	+ 80	- 60
	3	6	**1 940**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 90	- 70
AUTO BRK FAULT	FULL	0	**1 680**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 70	- 60
	3	6	**1 840**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 70	- 80

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 790**	- 10	+ 60	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 70	+ 100	+ 80	+ 200	+ 70	+ 80	- 100
AUTO BRK FAULT	FULL	0	**1 790**	- 10	+ 30	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 230	+ 60	+ 100	- 120
	3	6	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 150**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 380	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 180
AUTO BRK FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 370	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ANTISKID FAULT	FULL	0	**3 510**	- 30	+ 70	+ 160	+ 180	+ 570	+ 150	+ 780	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510
AUTO BRK FAULT	FULL	0	**3 520**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 510

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 170	+ 90	+ 220	+ 90	+ 30	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 450**	- 20	+ 50	+ 160	+ 100	+ 250	+ 90	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 190	- 50
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 160	+ 200	+ 600	+ 160	+ 870	- 460
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 890**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 40	- 40
	3	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 350**	- 10	+ 50	+ 90	+ 60	+ 150	+ 60	+ 30	- 30
	3	16	**1 450**	- 10	+ 50	+ 90	+ 70	+ 160	+ 60	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 480**	- 20	+ 70	N/A	+ 130	+ 260	+ 110	+ 90	- 130
	3	10	**1 780**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 70	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 740**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 60	- 70
	3	16	**1 900**	- 20	+ 60	+ 110	+ 100	+ 230	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 560**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 170
	3	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 920**	- 10	+ 40	+ 90	+ 80	+ 190	+ 60	+ 70	- 110
	3	16	**2 060**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**2 860**	- 20	+ 50	N/A	+ 110	+ 240	+ 100	+ 140	- 230
	3	10	**2 190**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 160
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 130**	- 20	+ 40	+ 100	+ 80	+ 220	+ 80	+ 100	- 150
	3	16	**2 290**	- 20	+ 40	+ 110	+ 90	+ 220	+ 80	+ 110	- 170

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**3 690**	- 40	+ 90	N/A	+ 210	+ 450	+ 170	+ 280	- 400
	3	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 380	+ 140	+ 200	- 220
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 510**	- 30	+ 70	+ 160	+ 140	+ 360	+ 130	+ 170	- 200
	3	16	**2 770**	- 30	+ 80	+ 140	+ 160	+ 390	+ 120	+ 190	- 250

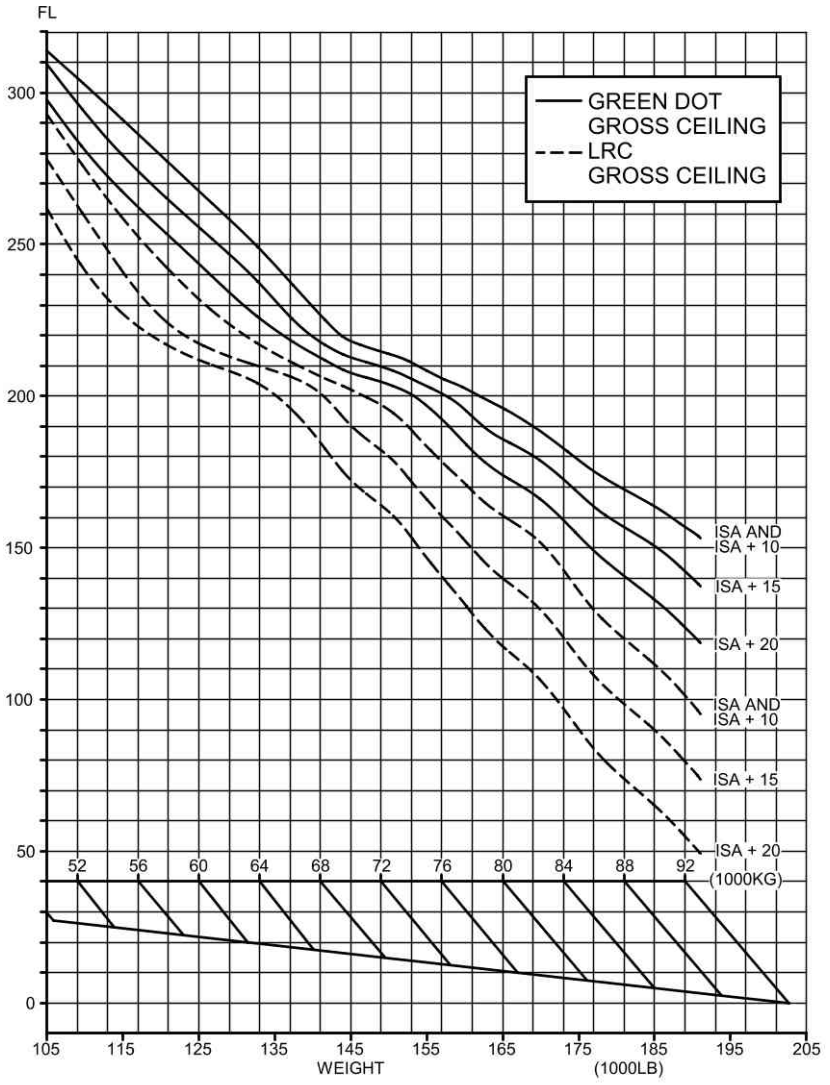
POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
REV UNLOCK (with buffet)	1	40	**5 030**	- 50	+ 90	N/A	+ 230	+ 580	+ 190	+ 910	- 860
	3	10	**3 790**	- 40	+ 80	+ 160	+ 180	+ 530	+ 150	+ 720	- 600
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 630**	- 30	+ 80	+ 150	+ 170	+ 520	+ 150	+ 650	- 540
	3	16	**3 940**	- 40	+ 80	+ 150	+ 180	+ 530	+ 150	+ 720	- 620

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-1 300 ft	-1 400 ft	-1 400 ft
	TOTAL ANTI ICE ON	-2 800 ft	-2 800 ft	-2 800 ft	-3 000 ft
GREEN DOT	ENGINE ANTI ICE ON	-1 000 ft	-1 000 ft	-1 100 ft	-1 200 ft
	TOTAL ANTI ICE ON	-2 100 ft	-2 100 ft	-2 300 ft	-2 500 ft

Note: For weights 85 000 kg or 187 400 lb, one engine ceilings at Long Range speed may be overestimated by FMS Legacy. In this case, ceiling values provided in the above graph should be retained.

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL(1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50				174 32 198 .9 31700	228 42 200 1.1 31800	262 47 202 1.3 31900	288 52 204 1.3 31900
54			156 29 202 .9 30100	222 41 204 1.2 30200	258 47 206 1.4 30300	285 52 208 1.5 30300	308 55 210 1.5 30400
58		152 29 206 .9 28200	231 43 208 1.3 28500	269 50 210 1.5 28600	298 54 212 1.7 28600	320 58 214 1.7 28700	339 61 216 1.8 28700
62		236 45 212 1.5 26400	279 52 214 1.7 26600	309 57 216 1.8 26600	333 61 218 1.9 26700	352 64 220 2.0 26700	369 67 222 2.1 26800
66	155 30 214 1.1 24200	281 53 218 1.8 24600	314 59 220 2.0 24600	339 63 222 2.1 24700	360 67 224 2.2 24700	378 69 226 2.3 24800	393 71 228 2.3 24800
70	231 45 220 1.7 22600	311 59 224 2.1 22800	335 63 226 2.2 22800	357 67 228 2.3 22900	376 70 230 2.4 22900	392 72 232 2.5 22900	406 74 234 2.5 23000
74	214 41 226 1.6 21300	278 53 230 2.0 21400	301 56 232 2.1 21400	321 60 234 2.2 21500	339 62 236 2.2 21500	354 65 238 2.3 21500	
78	212 40 232 1.6 20500	264 49 236 1.9 20600	283 52 238 2.0 20600	301 55 240 2.1 20600	316 57 242 2.2 20600	330 60 244 2.2 20600	
82	242 46 238 1.9 19600	282 52 242 2.1 19700	298 55 244 2.2 19700	313 57 246 2.3 19700	326 59 248 2.3 19800		
86	278 52 244 2.3 18400	317 58 248 2.5 18400	332 61 250 2.6 18500	346 63 252 2.6 18500	359 65 254 2.7 18500		
90	300 56 250 2.6 17100	335 61 254 2.7 17200	349 64 256 2.8 17200	363 66 258 2.9 17200			
94	317 59 256 2.8 15900	350 64 260 3.0 15900	363 66 262 3.0 16000	375 67 264 3.1 16000			

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 15 %	+ 12 %	+ 18 %	- 200 FT
TOTAL ANTI ICE ON	+ 20 %	+ 24 %	+ 33 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.181 .442 1972 244	1.250 .480 1915 241	1.319 .507 1856 236	1.369 .530 1874 237	1.417 .549 1870 236	1.472 .571 1875 236
54	1.199 .454 2093 251	1.281 .494 2047 249	1.363 .529 2029 246	1.411 .548 2028 246	1.464 .569 2032 245	1.520 .588 2034 243
58	1.223 .466 2224 258	1.310 .506 2174 255	1.402 .546 2185 255	1.454 .567 2190 254	1.510 .587 2196 253	1.554 .591 2138 244
62	1.253 .484 2387 268	1.344 .521 2330 263	1.441 .562 2343 262	1.497 .583 2354 262	1.536 .585 2277 252	1.568 .551 2121 227
66	1.278 .495 2519 274	1.380 .538 2499 272	1.480 .578 2504 270	1.534 .595 2503 267	1.548 .548 2252 235	
70	1.303 .506 2651 280	1.412 .552 2651 278	1.517 .591 2667 277	1.547 .578 2519 260		
74	1.327 .515 2785 286	1.446 .567 2818 286	1.549 .600 2811 281	1.562 .528 2482 236		
78	1.359 .531 2968 295	1.478 .579 2979 293	1.557 .577 2795 270			
82	1.385 .543 3124 301	1.510 .592 3146 299	1.574 .523 2758 243			
86	1.412 .554 3282 308	1.519 .580 3163 293				
90	1.440 .567 3449 315	1.529 .559 3158 282				
94	1.456 .569 3540 316	1.549 .512 3139 258				
ENGINE ANTI ICE ON △FUEL = + 2 %				TOTAL ANTI ICE ON △FUEL = + 4 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

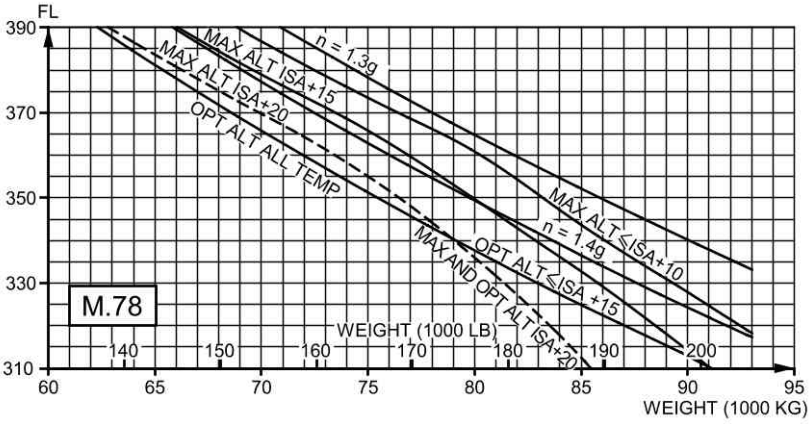
AIR DIST. (NM)	FLIGHT LEVEL						CORRECTION ON FUEL CONSUMPTION (KG/1000KG)		
	100	**150**	**200**	**220**	**240**	**250**	**FL100 FL150**	**FL200 FL220**	**FL240 FL250**
200	1510 0.46	1317 0.44	1180 0.42	1131 0.41	1083 0.41	1061 0.41	9	7	6
300	2259 1.06	2008 1.03	1826 0.59	1762 0.58	1699 0.57	1670 0.58	15	14	13
400	3004 1.27	2694 1.22	2468 1.17	2388 1.15	2312 1.14	2276 1.15	21	20	20
500	3745 1.47	3377 1.41	3106 1.34	3010 1.32	2921 1.31	2877 1.32	27	27	27
600	4481 2.08	4055 2.00	3739 1.52	3628 1.49	3527 1.48	3475 1.49	34	34	34
700	5212 2.28	4729 2.19	4369 2.10	4241 2.07	4129 2.04	4069 2.05	40	40	41
800	5938 2.49	5400 2.39	4994 2.28	4851 2.24	4727 2.21	4659 2.22	46	47	48
900	6659 3.10	6066 2.58	5615 2.46	5456 2.41	5320 2.38	5247 2.38	52	53	54
1000	7376 3.31	6728 3.17	6232 3.04	6058 2.59	5907 2.55	5831 2.55	58	60	61
1100	8088 3.52	7387 3.37	6845 3.22	6656 3.16	6490 3.12	6413 3.11	63	66	68
1200	8798 4.13	8042 3.56	7454 3.41	7250 3.34	7070 3.29	6991 3.28	69	73	74
1300	9506 4.34	8693 4.16	8059 3.59	7840 3.52	7645 3.46	7566 3.44	75	79	81
1400	10209 4.55	9340 4.36	8661 4.17	8427 4.10	8217 4.03	8137 4.00	81	86	87

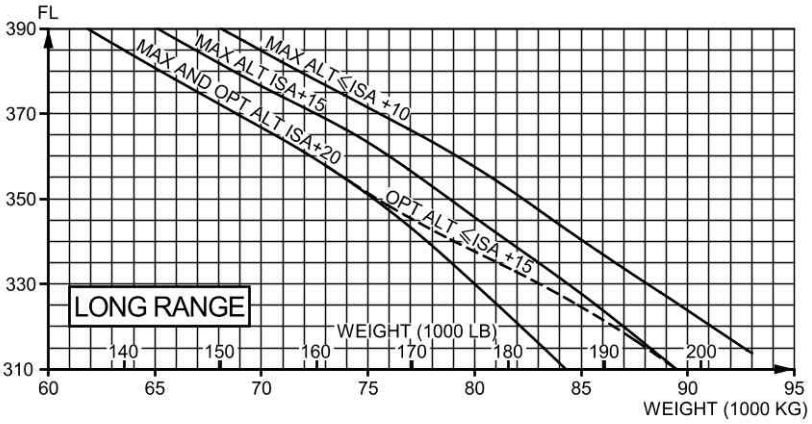
ENGINE ANTI ICE ON △FUEL = + 2 %	**TOTAL ANTI ICE ON** △FUEL = + 4 %

FLIP23 A321-131 IAE V2530-A5 3610 03301.001011 0250300 .7801 .000100 140 0300350 60 0 100100 40100 18590 CL-N0-04-07-150

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES





CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 500 ft Opt ALT :- 300 ft	Max ALT : -1 100 ft Opt ALT : - 300 ft
ISA +15	Max ALT : - 700 ft Opt ALT : - 300 ft	Max ALT : -1 500 ft Opt ALT : - 600 ft
ISA +20	Max ALT : -1 000 ft Opt ALT : -1 000 ft	Max ALT : -2 300 ft Opt ALT : -2 300 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 – DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 65000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	1037 0.36	978 0.36	926 0.36	880 0.36	842 0.36	816 0.36	1	2	4
400	2281 1.02	2158 1.02	2049 1.02	1956 1.03	1885 1.03	1854 1.03	7	10	20
600	3518 1.27	3329 1.28	3164 1.29	3023 1.29	2918 1.30	2875 1.30	13	18	33
800	4747 1.53	4494 1.54	4271 1.55	4081 1.56	3939 1.56	3882 1.56	19	25	45
1000	5970 2.19	5650 2.20	5370 2.22	5131 2.23	4951 2.23	4874 2.23	25	33	57
1200	7185 2.45	6799 2.47	6461 2.48	6171 2.49	5952 2.50	5852 2.50	31	40	67
1400	8393 3.11	7941 3.13	7544 3.14	7204 3.16	6944 3.17	6816 3.17	36	47	77
1600	9596 3.37	9076 3.39	8620 3.41	8228 3.43	7925 3.44	7768 3.44	41	54	86
1800	10792 4.03	10205 4.05	9689 4.07	9244 4.09	8898 4.10	8707 4.10	46	60	94
2000	11983 4.29	11327 4.31	10751 4.34	10254 4.36	9865 4.37	9640 4.37	51	66	102
2200	13167 4.55	12442 4.58	11806 5.00	11256 5.03	10825 5.04	10566 5.04	56	73	110
2400	14345 5.21	13551 5.24	12855 5.26	12251 5.29	11776 5.31	11482 5.31	61	79	117
2600	15518 5.47	14654 5.50	13897 5.53	13239 5.56	12720 5.58	12388 5.58	65	85	125
2800	16685 6.13	15750 6.16	14932 6.19	14220 6.23	13657 6.24	13286 6.24	68	90	131
3000	17851 6.39	16841 6.42	15961 6.46	15195 6.49	14586 6.51	14175 6.51	72	96	138

ECON AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.6 %	△FUEL = + 2 %	△FUEL = + 5 %

FLIP22B A321-131 IAE V2530-A5&3610 03301.300211 0250300 .7800 .000200 140 0300350 65 0 100100 40100 18590 CL-N0-CL-004-009-150

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 50 kg/min in the FMGC.

  or
- CI_{LRC} = 70 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	60				80				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.7	173	100	IDLE					241
370	15.9	166	95	IDLE	18.0	186	108	IDLE	252
350	15.2	159	90	IDLE	17.3	179	103	IDLE	264
330	14.6	153	85	IDLE	16.6	173	98	IDLE	277
310	14.0	148	81	IDLE	16.0	167	93	IDLE	289
290	13.5	143	76	IDLE	15.3	161	88	IDLE	300
270	12.8	137	71	IDLE	14.5	154	81	IDLE	300
250	12.1	131	66	IDLE	13.6	146	75	IDLE	300
240	11.7	127	63	IDLE	13.2	143	72	IDLE	300
220	11.0	121	58	IDLE	12.3	135	66	IDLE	300
200	10.2	114	53	IDLE	11.5	127	60	IDLE	300
180	9.5	108	48	IDLE	10.5	119	54	IDLE	300
160	8.7	100	43	IDLE	9.6	110	48	IDLE	300
140	7.9	93	39	IDLE	8.7	101	42	IDLE	300
120	7.1	85	34	IDLE	7.7	92	37	IDLE	300
100	6.3	76	29	IDLE	6.7	81	31	IDLE	300
50	2.4	30	10	IDLE	2.5	32	11	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	ECON AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 1 min	+ 3 min	+ 0.2 %
FUEL	– 2 %	+ 17 %	+ 90 %	+ 0.7 %
DISTANCE	–	+ 4 %	+ 20 %	+ 0.4 %

10B-08FA321-131IAEV2530-A523100000C5KG330001859000-1-350.015.0.00003.780300.000250.0000 FCOM-N0-03-05-30-002-150

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 120 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 100 KG (4MIN)

REF. LDG WT AT DEST. = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	601 0.12						2		
60	775 0.16						4		
80	950 0.20	898 0.19					5		
100	1124 0.23	1056 0.23	1035 0.22				6	6	
120	1299 0.27	1213 0.26	1172 0.26	1172 0.25			7	7	
140	1474 0.31	1371 0.30	1310 0.29	1294 0.28			8	8	
160	1649 0.35	1529 0.33	1447 0.32	1416 0.31	1423 0.31		9	8	10
180	1825 0.39	1687 0.37	1585 0.35	1539 0.35	1536 0.34	1547 0.33	10	9	12
200	2000 0.43	1845 0.40	1723 0.38	1662 0.38	1650 0.36	1654 0.36	11	10	13
220	2176 0.46	2003 0.44	1860 0.42	1784 0.41	1763 0.39	1761 0.39	12	10	14
240	2352 0.50	2161 0.47	1998 0.45	1907 0.44	1877 0.42	1869 0.41	13	11	15
260	2529 0.54	2320 0.50	2136 0.48	2030 0.47	1991 0.45	1976 0.44	15	12	16
280	2705 0.58	2479 0.54	2274 0.51	2153 0.50	2105 0.48	2084 0.47	16	13	17
300	2882 1.02	2638 0.57	2413 0.54	2277 0.53	2220 0.51	2192 0.50	17	13	18
320	3059 1.05	2797 1.01	2551 0.58	2400 0.57	2334 0.54	2300 0.53	18	14	20
340	3236 1.09	2956 1.04	2689 1.01	2524 1.00	2449 0.57	2408 0.55	19	15	21
360	3414 1.13	3115 1.07	2828 1.04	2647 1.03	2563 1.00	2516 0.58	20	16	22
380	3591 1.17	3275 1.11	2966 1.07	2771 1.06	2678 1.03	2625 1.01	21	16	23
400	3769 1.21	3435 1.14	3105 1.10	2895 1.09	2793 1.06	2733 1.04	22	17	24
420	3947 1.24	3594 1.18	3243 1.14	3019 1.12	2908 1.09	2842 1.06	23	18	25
440	4125 1.28	3754 1.21	3382 1.17	3143 1.15	3023 1.12	2951 1.09	25	19	26
460	4304 1.32	3915 1.24	3521 1.20	3267 1.18	3138 1.15	3060 1.12	26	20	27
480	4482 1.35	4075 1.28	3660 1.23	3392 1.21	3253 1.18	3169 1.15	27	20	28
500	4661 1.39	4235 1.31	3799 1.26	3516 1.25	3369 1.21	3278 1.18	28	21	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 4 %	△FUEL = + 6 %

CL-N0-04-13-155

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 140 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

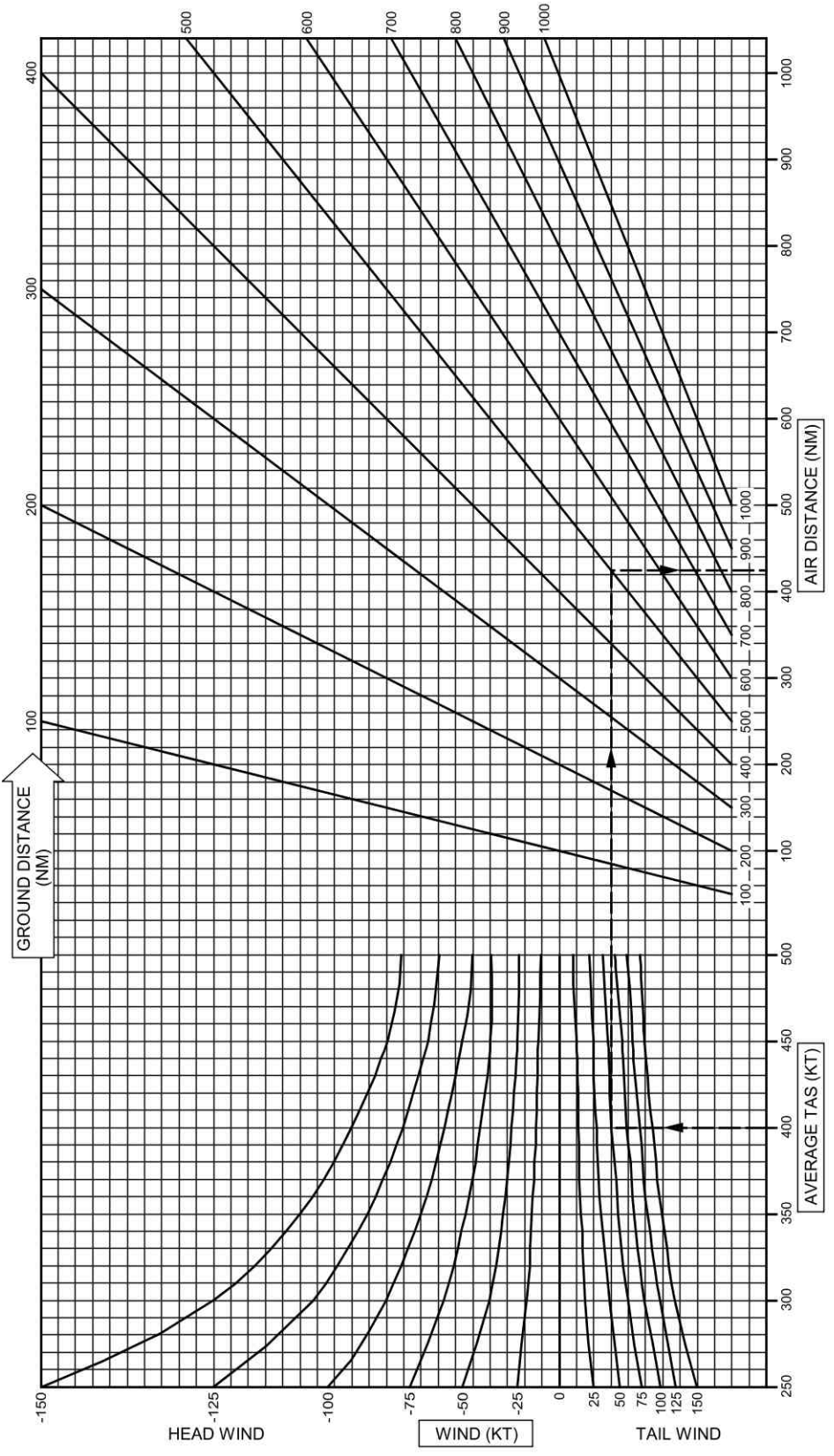
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	65	70	75	80	85	90	95
40	337 0.15	339 0.15	342 0.15	347 0.15	353 0.15	361 0.15	370 0.15
60	515 0.18	523 0.18	531 0.18	540 0.18	551 0.18	561 0.18	571 0.18
80	693 0.22	706 0.22	719 0.21	733 0.21	748 0.21	761 0.21	773 0.21
100	871 0.26	890 0.25	908 0.25	926 0.24	945 0.24	960 0.24	975 0.24
120	1048 0.30	1073 0.29	1096 0.28	1119 0.28	1141 0.27	1160 0.27	1176 0.27
140	1226 0.33	1256 0.32	1284 0.31	1312 0.31	1338 0.30	1359 0.30	1378 0.30
160	1403 0.37	1438 0.36	1472 0.35	1504 0.34	1534 0.33	1559 0.33	1580 0.33
180	1580 0.41	1621 0.39	1659 0.38	1696 0.37	1731 0.36	1758 0.36	1782 0.36
200	1757 0.45	1803 0.43	1846 0.42	1888 0.41	1927 0.39	1957 0.39	1984 0.39
220	1933 0.48	1985 0.46	2034 0.45	2080 0.44	2123 0.43	2156 0.42	2185 0.42
240	2110 0.52	2167 0.50	2221 0.48	2271 0.47	2319 0.46	2355 0.45	2387 0.45
260	2286 0.56	2349 0.53	2407 0.52	2463 0.51	2515 0.49	2554 0.48	2589 0.48
280	2462 1.00	2530 0.57	2594 0.55	2654 0.54	2710 0.52	2753 0.51	2791 0.51
300	2637 1.04	2711 1.00	2780 0.58	2845 0.57	2906 0.55	2952 0.54	2993 0.54
320	2813 1.07	2892 1.04	2967 1.02	3036 1.00	3101 0.59	3150 0.57	3195 0.57
340	2988 1.11	3073 1.07	3153 1.05	3227 1.04	3296 1.02	3349 1.00	3397 1.00
360	3164 1.15	3254 1.11	3339 1.09	3417 1.07	3491 1.05	3547 1.03	3599 1.03
380	3339 1.19	3434 1.15	3524 1.12	3608 1.10	3686 1.08	3745 1.05	3800 1.05
400	3513 1.23	3615 1.18	3710 1.15	3798 1.14	3881 1.12	3943 1.08	4001 1.08
420	3688 1.26	3795 1.22	3895 1.19	3988 1.17	4076 1.15	4141 1.11	4202 1.11
440	3862 1.30	3975 1.25	4080 1.22	4177 1.20	4270 1.18	4339 1.14	4402 1.14
460	4037 1.34	4154 1.29	4265 1.26	4367 1.24	4465 1.22	4537 1.17	4603 1.17
480	4211 1.38	4334 1.33	4450 1.29	4557 1.27	4659 1.25	4735 1.20	4803 1.20
500	4384 1.42	4513 1.36	4635 1.33	4746 1.30	4853 1.28	4932 1.23	5003 1.23
520	4558 1.46	4692 1.40	4819 1.36	4935 1.34	5047 1.32	5130 1.26	5203 1.26
540	4732 1.49	4871 1.43	5003 1.40	5124 1.37	5241 1.35	5327 1.29	5403 1.29

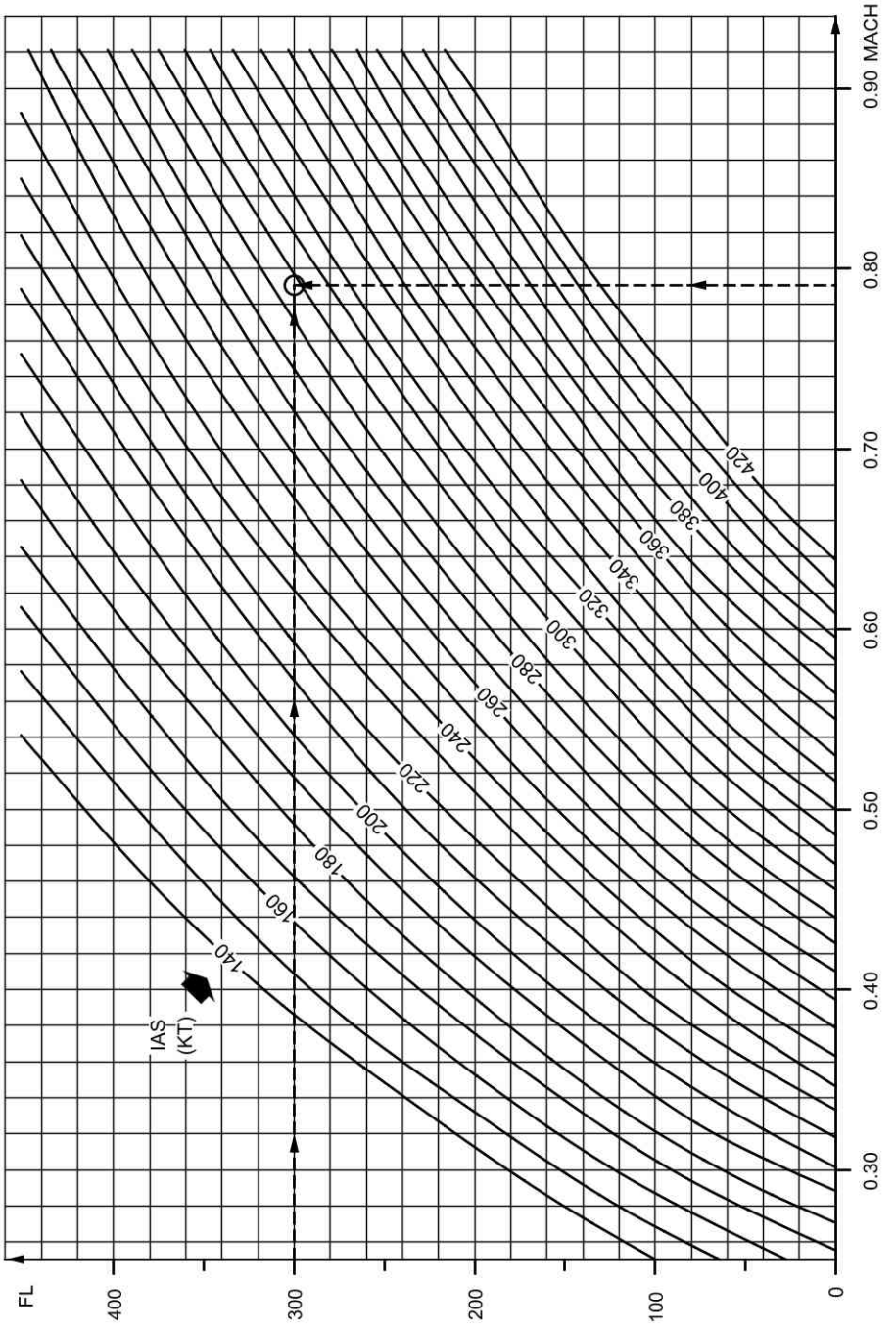
AIR CONDITIONING OFF	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = − 2 %	△FUEL = + 3 %	△FUEL = + 5 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

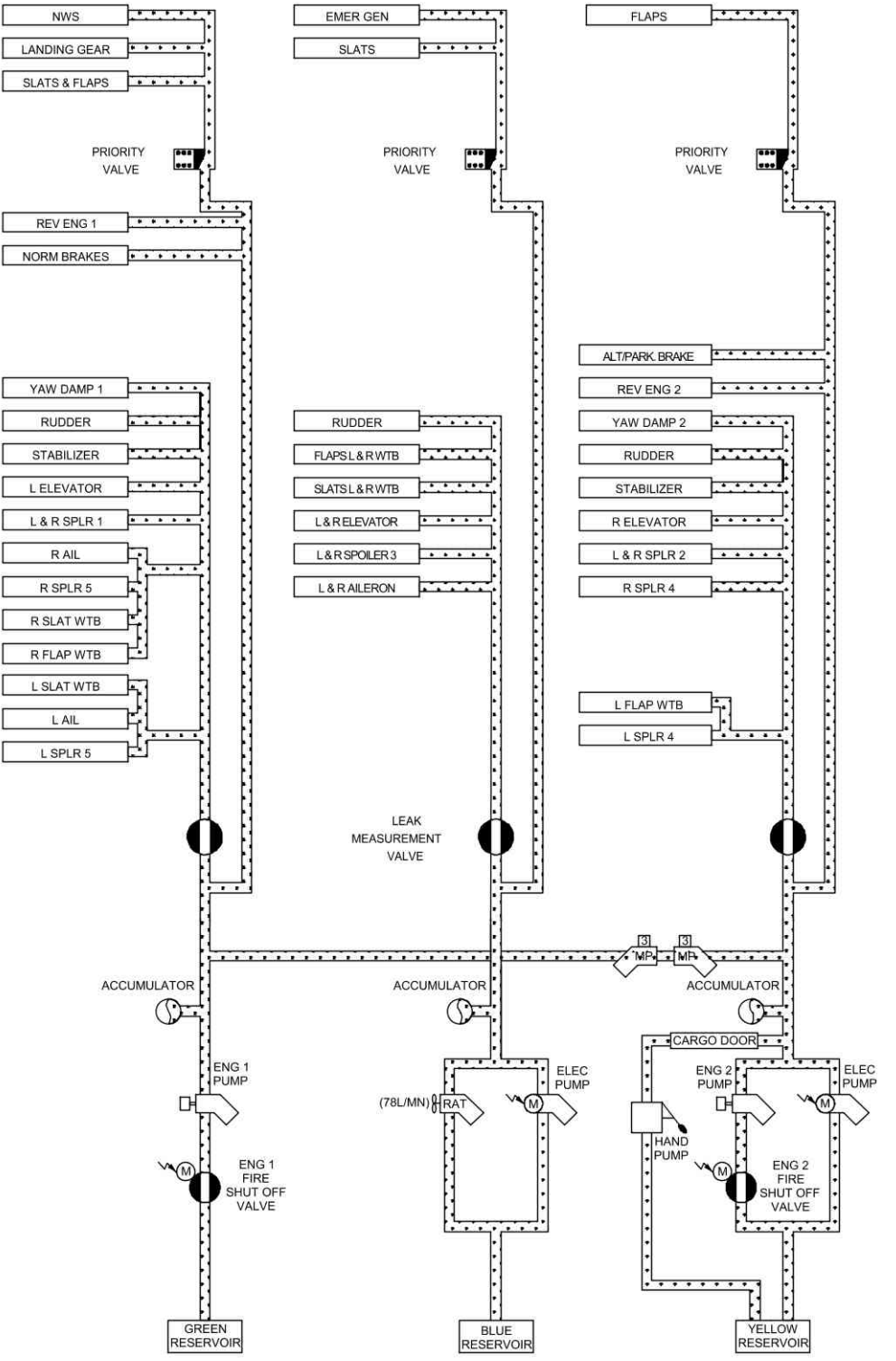
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)										
		54	58	62	66	70	74	78	82	86	90	94
		N1 %										
390	**0.76**	79.4	80.6	-	-	-	-	-	-	-	-	-
370	**0.76**	77.9	78.9	80.0	81.2	-	-	-	-	-	-	-
350	**0.76**	77.2	77.9	78.8	79.7	80.7	-	-	-	-	-	-
330	**0.76**	76.9	77.6	78.2	79.0	79.8	80.7	81.6	-	-	-	-
310	**0.76**	76.7	77.3	77.9	78.5	79.2	79.9	80.6	81.5	82.4	-	-
290	**0.76**	76.7	77.2	77.7	78.2	78.8	79.4	80.0	80.6	81.4	82.1	83.0
270	**300**	76.2	76.6	77.0	77.5	78.0	78.5	79.1	79.6	80.3	80.9	81.6
250	**300**	75.0	75.4	75.8	76.2	76.7	77.1	77.7	78.2	78.9	79.5	80.2
200	**300**	72.2	72.5	72.9	73.3	73.7	74.2	74.7	75.2	75.8	76.4	77.0
150	**270**	65.5	65.9	66.5	67.0	67.7	68.4	69.2	70.3	71.0	71.8	72.6
100	**270**	62.5	62.9	63.5	64.0	64.6	65.3	66.0	66.8	67.6	68.4	69.2
50	**270**	59.1	59.5	60.0	60.5	61.1	61.8	62.6	63.4	64.2	65.0	65.7

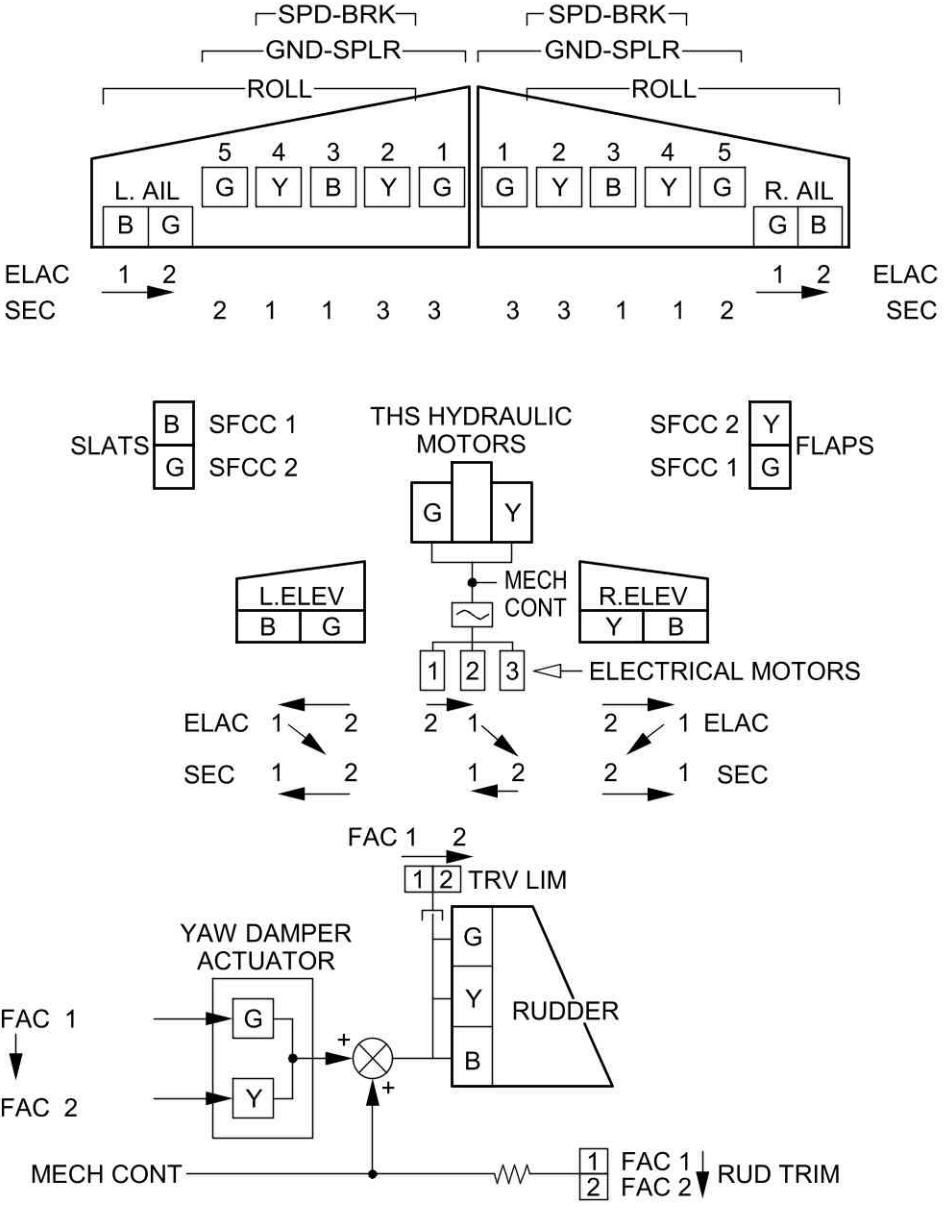
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTH**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTH**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HTH**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HTH**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

■ If the F-PLN is not lost:

Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

■ If the F-PLN is lost:

When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTH**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTH**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTH**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTH**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTH**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTH**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTH**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTH**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected..... OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTH**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTH**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
● if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTH**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTH**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank

QUICK REFERENCE HAND BOOK

A320/A321

DRAGONAIR

For A/C: B-HTI

The content of this document is the property of Airbus. It is supplied in confidence and commercial security on its contents must be maintained. It must not be used for any purpose other than that for which it is supplied, nor may information contained in it be disclosed to unauthorized persons. It must not be reproduced in whole or in part without permission in writing from the owners of the copyright.
© AIRBUS 2005. All rights reserved.

AIRBUS S.A.S
CUSTOMER SERVICES DIRECTORATE
31707 BLAGNAC CEDEX
FRANCE

Intentionally left blank

Issue date: 03 AUG 12

This is the QUICK REFERENCE HAND BOOK at issue date 03 AUG 12 for the A320/A321 and replacing last issue dated 30 MAR 12

QRH PAGE GEN.03 PROVIDES ADDITIONAL GUIDANCE TO MANAGE THE QRH UPDATES.

Intentionally left blank

Please incorporate the revision as follow:

Localization Subsection Title	Remove	Insert Rev. Date
Please move the List of Effective OEB from the liminary pages to first position in the OEB section.		03 AUG 12
In the OEB section, the OEB Approbation DU located in each OEB may be removed.		03 AUG 12
QRH - General	ALL	
GEN **General**	ALL	03 AUG 12
ABN-22 **Auto Flight**	ALL	03 AUG 12
ABN-24 **Electrical**	ALL	03 AUG 12
ABN-26 **Fire Protection**	ALL	03 AUG 12
ABN-27 **Flight Controls**	ALL	03 AUG 12
ABN-29 **Hydraulic**	ALL	03 AUG 12
ABN-32 **Landing Gear**	ALL	03 AUG 12
ABN-34 **Navigation**	ALL	03 AUG 12
ABN-36 **Pneumatic**	ALL	03 AUG 12
ABN-70 **Engines**	ALL	03 AUG 12
ABN-80 **Miscellaneous**	ALL	03 AUG 12
CP-LVO **Low Visibility Operations**	ALL	03 AUG 12
CP-LVP **Low Visibility Procedures**	ALL	03 AUG 12
CP-AWO **Cold Weather / De-Icing**	ALL	03 AUG 12
CP-AWP **All Weather Procedures**	ALL	03 AUG 12
CP-FAIL **ACARS LANDING Fail Codes**	ALL	03 AUG 12
FPE-FPF **Fuel Penalty Factors**	ALL	03 AUG 12
FPE-IFL-MAT **Runway Condition Assessment Matrix for Landing**		03 AUG 12
FPE-IFL-VAP **VAPP Determination without failure**		03 AUG 12
FPE-IFL-LD **In-Flight Landing Distance Without Failure**		03 AUG 12
FPE-IFL-VAF **VAPP Determination with Failure**		03 AUG 12
FPE-IFL-24 **Landing Distance with Electrical System Failure**		03 AUG 12
FPE-IFL-27 **Landing Distance with Flight Controls System Failure**		03 AUG 12
FPE-IFL-27A **Landing Distance with Slats Flaps System Failure**		03 AUG 12
FPE-IFL-29 **Landing Distance with Hydraulic System Failure**		03 AUG 12
FPE-IFL-30 **Landing Distance with Anti Ice System Failure**		03 AUG 12
FPE-IFL-32 **Landing Distance with Brake System Failure**		03 AUG 12
FPE-IFL-34 **Landing Distance with Navigation System Failure**		03 AUG 12
FPE-IFL-36 **Landing Distance with Bleed System Failure**		03 AUG 12
FPE-IFL-70 **Landing Distance with Engine System Failure**		03 AUG 12

Localization Subsection Title	Remove	Insert Rev. Date
OEBPROC-43 **F/CTL SPOILER FAULT**	ALL	03 AUG 12
OEBPROC-44 **L/G GEAR NOT DOWNLOCKED**	ALL	03 AUG 12

PRELIMINARY PAGES

Intentionally left blank

M(1)	Identification	T(2)	E(3)	Rev. Date	Title
	OEB38 issue 1.0	R	N	30 MAR 12	Erroneous Radio Altimeter Height Indication
	Criteria: SA **Applicable to: B-HTI**				
	OEB11 issue 1.0	W	Y	30 MAR 12	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight
	Criteria: V2500-A5 **Applicable to: B-HTI**				
	OEB17 issue 1.0	W	N	30 MAR 12	Dual FM Reset upon Radial Fix Info Entry
	Criteria: 22-1090, P7520 **Applicable to: B-HTI**				
	OEB31 issue 1.0	W	N	30 MAR 12	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches
	Criteria: SA **Applicable to: B-HTI**				
	OEB36 issue 1.0	W	Y	03 AUG 12	No SRS Engagement During Go Around in the Case of EPR Mode Fault
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTI**				
	OEB40 issue 1.0	W	Y	30 MAR 12	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT
	Criteria: SA **Applicable to: B-HTI**				
R	OEB43 issue 4.0	W	Y	03 AUG 12	F/CTL SPOILER FAULT
	Criteria: SA **Applicable to: B-HTI**				
R	OEB44 issue 4.0	W	Y	03 AUG 12	L/G GEAR NOT DOWNLOCKED
	Criteria: SA **Applicable to: B-HTI**				

(1) Evolution code : N=New, R=Revised, E=Effectivity
(2) Type of OEB: R=Red, W=White
(3) Affects ECAM: Y=Yes, N=No

Intentionally left blank

M(1)	Localization	Subsection Title	Rev. Date
R	GEN	General	03 AUG 12
	ABN-21	Air Conditioning/Ventilation/Pressurization	30 MAR 12
E	ABN-22	Auto Flight	03 AUG 12
R	ABN-24	Electrical	03 AUG 12
	ABN-25	Equipment	30 MAR 12
E	ABN-26	Fire Protection	03 AUG 12
R	ABN-27	Flight Controls	03 AUG 12
	ABN-28	Fuel	03 AUG 12
R	ABN-29	Hydraulic	03 AUG 12
	ABN-30	Ice and Rain Protection	30 MAR 12
	ABN-31	Indicating / Recording Systems	03 AUG 12
R	ABN-32	Landing Gear	03 AUG 12
R	ABN-34	Navigation	03 AUG 12
R	ABN-36	Pneumatic	03 AUG 12
R	ABN-70	Engines	03 AUG 12
R	ABN-80	Miscellaneous	03 AUG 12
R	CP-LVO	Low Visibility Operations	03 AUG 12
R	CP-LVP	Low Visibility Procedures	03 AUG 12
	CP-RNAV	Area Navigation	30 MAR 12
R	CP-AWO	Cold Weather / De-Icing	03 AUG 12
R	CP-AWP	All Weather Procedures	03 AUG 12
	CP-AWA	All Weather Altimetry	30 MAR 12
	CP-MISC	Miscellaneous	03 AUG 12
R	CP-FAIL	ACARS LANDING Fail Codes	03 AUG 12
	FPE-SPD	Speeds	03 AUG 12
M	FPE-FPF	Fuel Penalty Factors	03 AUG 12
N	FPE-IFL-MAT	Runway Condition Assessment Matrix for Landing	03 AUG 12
N	FPE-IFL-VAP	VAPP Determination without failure	03 AUG 12
N	FPE-IFL-LD	In-Flight Landing Distance Without Failure	03 AUG 12
N	FPE-IFL-VAF	VAPP Determination with Failure	03 AUG 12
N	FPE-IFL-24	Landing Distance with Electrical System Failure	03 AUG 12
N	FPE-IFL-27	Landing Distance with Flight Controls System Failure	03 AUG 12
N	FPE-IFL-27A	Landing Distance with Slats Flaps System Failure	03 AUG 12
N	FPE-IFL-29	Landing Distance with Hydraulic System Failure	03 AUG 12
N	FPE-IFL-30	Landing Distance with Anti Ice System Failure	03 AUG 12
N	FPE-IFL-32	Landing Distance with Brake System Failure	03 AUG 12
N	FPE-IFL-34	Landing Distance with Navigation System Failure	03 AUG 12
N	FPE-IFL-36	Landing Distance with Bleed System Failure	03 AUG 12
N	FPE-IFL-70	Landing Distance with Engine System Failure	03 AUG 12
	FPE-OEI	One Engine Inoperative	03 AUG 12
	FPE-AEO	All Engines Operative	03 AUG 12
	FPE-CAB	Flight Without Cabin Pressurization	03 AUG 12
	FPE-OPD	Operating Data	30 MAR 12
	OPS	Operational Data	03 AUG 12
	OEBPROC-11	"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight	30 MAR 12
	OEBPROC-17	Dual FM Reset upon Radial Fix Info Entry	30 MAR 12
	OEBPROC-31	Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches	30 MAR 12
	OEBPROC-36	No SRS Engagement During Go Around in the Case of EPR Mode Fault	03 AUG 12
	OEBPROC-38	Erroneous Radio Altimeter Height Indication	30 MAR 12
	OEBPROC-40	AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT	30 MAR 12
R	OEBPROC-43	F/CTL SPOILER FAULT	03 AUG 12
R	OEBPROC-44	L/G GEAR NOT DOWNLOCKED	03 AUG 12

(1) Evolution code : N=New, R=Revised, E=Effectivity, M=Moved

Intentionally left blank

M(1)	Localization	DU Title	DU identification	DU date
R	ABN-80	**Computer Reset Table**	NG00824	
R	ABN-80	**Computer Reset Table - 27 - Flight Controls**	00014190.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTI** *Impacted DU: NONE*			
	Reason for issue: *This Temporary Documentary Unit is created to allow flight crew to reset all SECs following a F/CTL SPLR FAULT triggered after the flight control check. This SEC reset covers the AIRBUS recommendations provided in OIT/FOT n° 999.0038/11.*			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

This table gives, for each delivered aircraft, the cross reference between:

- The Manufacturing Serial Number (MSN).
- The Fleet Serial Number (FSN) of the aircraft as known by AIRBUS S.A.S.
- The registration number of the aircraft as known by AIRBUS S.A.S.
- The aircraft model.

M(1)	MSN	FSN	Registration Number	Model
	2021	HDA 0152	B-HTI	321-231

(1) Evolution code : N=New, R=Revised

Intentionally left blank

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P2590		30 AUG 10	NAVIGATION - INSTALL A BENDIX TCAS II COLLISION AVOIDANCE SYSTEM
	Applicable to: ALL			
	K10494		30 AUG 10	AIRBORNE AUXILIARY POWER - GENERAL - INSTALL APIC APS3200 APU AS STANDARD (REPLACES HONEYWELL GTCP36-300)
	Applicable to: ALL			
	P10383		30 AUG 10	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F5
	Applicable to: ALL			
	31-1300 02		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2-F3P.
	Applicable to: ALL			
	32-1336 01		25 NOV 11	LANDING GEAR - NORMAL BRAKING - INSTALL BSCU STD 10 BY SB ONLY.
	Applicable to: ALL			
	P6251		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY WITH INPUT VALUE FUNCTION SUPPRESSED
	Applicable to: ALL			
	K2113		30 AUG 10	FUSELAGE - REAR FUSELAGE SECTION 16A - DEFINE A321 BASIC STRUCTURE
	Applicable to: ALL			
	P4801		30 AUG 10	ELECTRICAL POWER-GENERAL-DEFINE NEW ELECTRICAL GENERATION CONCEPT FOR SINGLE AISLE A/C
	Applicable to: ALL			
	K1806		30 AUG 10	ELECTRICAL POWER-AC/DC ESSENTIAL POWER DISTRIBUTION-PROVIDE PROVISIONS FOR ETOPS-
	Applicable to: ALL			
	P7175		30 AUG 10	ELECTRICAL POWER - GENERAL - INSTALL A COMMERCIAL SHEDDING PUSH-BUTTON SWITCH IN COCKPIT
	Applicable to: ALL			
	J1334		30 AUG 10	LANDING GEAR-MLG-LGCIU-INTRODUCTION OF STANDARD UNIT P/N A4C
	Applicable to: ALL			
	P6437		30 MAY 12	INDICATING RECORDING SYSTEM-FWS INTRODUCE FWC STANDARD H1PE3P
	Applicable to: ALL			
	P8564	31-1331 01	30 AUG 10	INDICATING/RECORDING SYSTEM - ELECTRONIC INSTRUMENT SYSTEM (EIS)- ACTIVATE ENGINE AVAIL DISPLAY
	Applicable to: ALL			
	P1573		30 AUG 10	ENGINE CONTROLS-MODIFY POWER SUPPLY FOR HP FUEL SOLENOID
	Applicable to: ALL			
	K5213		30 AUG 10	AIR CONDITIONING-PACK TEMPERATURE CTRL- INTRODUCE MODIFIED PACK TEMPERATURE CONTROLLER
	Applicable to: ALL			
	J2662		30 AUG 10	FUEL - QUANTITY INDICATING - INTRODUCE NEW STANDARD OF FQIC -P/N SIC5059 14-20
	Applicable to: ALL			
	P5071	30-1037 02	30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD RAIN PROTECTION-ACTIVATION OF RAIN REPELLENT SYS.(FLUID COMPATIBLE WITH OZONE RULES)
	Applicable to: ALL			
	J0071		30 AUG 10	WINGS-WING TIP FENCES-INTRODUCE WING TIPS INCLUDING FENCES-
	Applicable to: ALL			
	K2450		30 AUG 10	AIRBORNE AUXILIARY POWER UNIT - INTRODUCE APIC APS-3200
	Applicable to: ALL			
	P7188	34-1345 02	30 AUG 10	NAVIGATION - EGPWS - ACTIVATE OBSTACLE OPTION ON THE EGPWS
	Applicable to: ALL			
	K11694		30 AUG 10	E/F -MISCELLANEOUS EMERGENCY EQUIPMENT- INSTALL ELT (406AFN) WITH RCP IN COCKPIT AND NAV PROVISIONS - HONEYWELL
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P9171		30 AUG 10	NAVIGATION-AIR DATA/INERTIAL REFERENCE SYSTEM (ADIRS) - INTRODUCE AIR DATA MONITORING FUNCTION
	Applicable to: ALL			
	P4766		25 NOV 11	NAVIGATION - SINGLE PWS - COLLINS SINGLE PWS ACTIVATION
	Applicable to: ALL			
	P6044		30 AUG 10	ICE AND RAIN PROTECTION-WINSHIELD- RAIN PROTECTION-INTRODUCE MODIFIED GAGE ASSY -P/N 4020W35-2
	Applicable to: ALL			
	P0091		30 AUG 10	OXYGEN - FLIGHT CREW SYSTEM - INSTALL A 77.1 CU/FT BOTTLE IN COMPOSITE MATERIAL -
	Applicable to: ALL			
	P5895	34-1193 37	30 AUG 10	NAVIGATION-GPWS-INTRODUCE EGPWS P/N 206-206 AND INHIBIT AUTOMATIC DEACTIVATION ENHANCED FUNCTIONS
	Applicable to: ALL			
	K7755	25-1305 06	07 APR 11	EQUIPMENT FURNISHINGS-CURTAINS AND PARTITIONS-MODIFIED INTRUSION AND PENETRATION RESISTANT COCKPIT DOOR
	Applicable to: ALL			
	P2316		30 AUG 10	AUTO FLIGHT - ACTIVATE WINDSHEAR FUNCTION
	Applicable to: ALL			
	31-1267 03		07 APR 11	INDICATING/RECORDING SYSTEMS - FLIGHT WARNING COMPUTER (FWC) - INSTALL FWC STANDARD H2F3.
	Applicable to: ALL			
	J0513		30 MAY 12	ICE AND RAIN PROTECTION - WING ICE PROTECTION - ETOPS CIRCUIT BREAKERS 1DL AND 2DL - TRANSFER POWER SUPPLY.
	Applicable to: ALL			
	P11510		30 MAY 12	NAVIGATION - TCAS - INSTALL TCAS HONEYWELL TPA-100B CHANGE 7.1 CAPABLE OF ATSAW
	Applicable to: ALL			
	P4576		30 AUG 10	LANDING GEAR-ALTERNATE BRAKING- INTRODUCE MODIFIED ALTERNATE BRAKING SYSTEM
	Applicable to: ALL			
	P5768		30 AUG 10	ELEC PWR-AC EMERGENCY GENERATION- ACTIVATE A319/A321 ELECTRICAL EMERGENCY CONFIGURATION ON A320 A/C
	Applicable to: ALL			
	P1044		30 MAY 12	GENERAL - COMPLEMENT OF BASIC DEFINITION FOLLOWING ESSENTIAL MAP DEVELOPMENT -
	Applicable to: ALL			
	J0006		30 AUG 10	FUEL- INSTALL A CENTRE TANK SYSTEM-
	Applicable to: ALL			
	P9892		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMS2 THALES S4 (REV2+) STD ON IAE AND PW A/C ASSOCIATED WITH FG I10
	Applicable to: ALL			
	P4234		30 AUG 10	ICE AND RAIN PROTECTION-WINDSHIELD RAIN PROTECTION-DESACTIVATION OF RAIN REPELLENT SYSTEM
	Applicable to: ALL			
	P6952	34-1245 03	30 AUG 10	NAVIGATION-ADIRS-INSTALL LITTON ADIRU 4 MCU STANDARD 0314 (A318 COEFF CFM ADDED)
	Applicable to: ALL			
	P7520	22-1090 11	30 AUG 10	AUTOFLIGHT-FMGC-INSTALL FMGC IAE C13042BA01 (EQUIPPED WITH FMS2 HONEYWELL)
	Applicable to: ALL			
	P8256		25 NOV 11	AUTO FLIGHT - FLIGHT AUGMENTATION COMPUTER - INSTALL FAC STANDARD BAM0617 FOR A318
	Applicable to: ALL			
	P6954		25 NOV 11	AUTO-FLIGHT - FLIGHT AUGMENTATION COMPUTER (FAC) - INTRODUCE FAC SOFTWARE "BAM0616"
	Applicable to: ALL			
	P4642	34-1176 05	30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE DUAL PREDICTIVE WINDSHEAR FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4647		30 AUG 10	NAVIGATION - WEATHER RADAR SYSTEM - ACTIVATE COLLINS DUAL PREDICTIVE WINDSHEAR SYSTEM
	Applicable to: ALL			
	P5168	34-1162 08	30 AUG 10	NAVIGATION - MMR - INSTALL COLLINS MMR PROVIDING ILS AND GPS FUNCTION
	Applicable to: ALL			
	P9824	31-1276 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)-INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S7
	Applicable to: ALL			
	P1872		30 AUG 10	AIR CONDITIONING - INSTALL CIRCUIT BREAKER FOR REAR CARGO COMPT VALVE SUPPLY FOR EROPS -
	Applicable to: ALL			
	K10009		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INSTALL IMPROVED STRIKES FOR COCKPIT DOOR
	Applicable to: ALL			
	P7125		30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2 F1
	Applicable to: ALL			
	P8671	31A1220 01	07 APR 11	INDICATING/RECORDING SYSTEMS-ELECTRONIC INSTRUMENT SYSTEM(EIS)- INSTALL DISPLAY MANAGEMENT COMPUTER SOFTWARE EIS2 S4-2
	Applicable to: ALL			
	J2527		30 AUG 10	FUEL - QUANTITY INDICATING - INSTALL FUEL QUANTITY INDICATING COMPUTER STANDARD 13.10
	Applicable to: ALL			
	P4089		30 AUG 10	AUTO FLIGHT-FMGC-REDUCE VAPP FOR A320 CFM/IAE
	Applicable to: ALL			
	P4502	46-1001 08 46-1006 04	30 AUG 10	INFORMATION SYSTEM - AIR TRAFFIC AND INFORMATION SYSTEM (ATIMS) - INSTALL ATSU COMPUTER FOR ACARS
	Applicable to: ALL			
	P6777		07 APR 11	INFORMATION SYSTEM-ATIMS- UPGRADE ATSU HARDWARE FOR NEW ARINC 429 I/O BOARD
	Applicable to: ALL			
	J2361		30 AUG 10	FUEL-QUANTITY INDICATION-REMOVE FUEL LEAK DETECTION FUNCTION ASSOCIATED WITH FQIC 13-9 (ANTI-MOD FOR MOD 32650)
	Applicable to: ALL			
	J2360		30 AUG 10	FUEL - QUANTITY INDICATION - INTRODUCE FUEL LEAK DETECTION
	Applicable to: ALL			
	P6578		30 AUG 10	INDICATING RECORDING SYSTEMS- EIS-INSTALL DMC, DU AND DISKETTES FOR EIS2
	Applicable to: ALL			
	P5638		30 AUG 10	NAVIGATION-STANDBY DATA : ALTITUDE AND HEADING - INSTALL INTEGRATED STANDBY INSTRUMENT SYSTEM (ISIS)
	Applicable to: ALL			
	25-1444 02		30 AUG 10	EQUIPMENT/FURNISHINGS - CURTAINS AND PARTITIONS - INTRODUCE PPTC FOR COCKPIT DOOR STRIKE PROTECTION
	Applicable to: ALL			
	P7278		30 AUG 10	INDICATING/RECORDING SYSTEM-EIS2- INSTALL MODIFIED EIS2 SOFTWARE
	Applicable to: ALL			
	P8015		25 NOV 11	AUTO FLIGHT - FMGC - RE-INSTALL FMGC IAE P/N C13042BA01
	Applicable to: ALL			
	P3341		30 AUG 10	LANDING GEAR - WHEELS AND BRAKES - INSTALL MESSIER GOODRICH WHEELS AND BRAKES ON A321
	Applicable to: ALL			
	K9009	25-1239 01	07 APR 11	COMMUNICATIONS - P/A - MODIFY EMERGENCY POWER SUPPLY -
	Applicable to: ALL			
	J2153		30 AUG 10	FUEL-CERTIFICATION OF FUEL SYSTEM- (LOW PRESSURE SYSTEM) FOR THE OPERATION 0 TO 2 ACTS
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	K10463		07 APR 11	AIR CONDITIONING - PACK TEMPERATURE CONTROL - INSTALL AIR CONDITIONING CONTROLLER P/N 1803B0000-02
	Applicable to: ALL			
	P9126	22-1203 01	07 APR 11	AUTOFLIGHT - FMGC - INSTALL FMGC IAE/PW STD P1I10 (WITH FMS2 HONEYWELL) ON A/C FITTED WITH IAE OR PW POWERPLANTS
	Applicable to: ALL			
	P3686		30 AUG 10	AUTO FLIGHT-FAC-INTRODUCE FAC P/N BAM 510
	Applicable to: ALL			
	P4319	22-1058 47	30 AUG 10	AUTO FLIGHT - FCU - DEFINE FLIGHT DIRECTOR ENGAGEMENT IN CROSSED BARS AT GO AROUND
	Applicable to: ALL			
	P2217		30 MAY 12	INDICATING/RECORDING SYSTEMS - FWS - INTRODUCE C3 STD
	Applicable to: ALL			
	K8400		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE ENHANCED CIDS (A318 VERSION) AND RELATED SYSTEMS ON SINGLE AISLE FAMILY
	Applicable to: ALL			
	P3511		30 AUG 10	AUTO FLIGHT - FAC - INSTALL TWO FACS P/N BAM 0509
	Applicable to: ALL			
	P8799	34-1352 01	30 AUG 10	NAVIGATION- GPWS - USE LATERAL GPS POSITION WITH AUTOMATIC DESELECTION
	Applicable to: ALL			
	K11047		30 MAY 12	COMMUNICATIONS - ANTI HIJACK CAMERA MONITORING - INSTALL COCKPIT DOOR SURVEILLANCE SYSTEM DISPLAYED ON SD
	Applicable to: ALL			
	P7062		30 AUG 10	OXYGEN - CREW OXYGEN - INSTALL ALTERNATIVE 115CU FT FLIGHT CREW OXYGEN CYLINDER COMPOSITE SCOTT P/N 897940-15
	Applicable to: ALL			
	P8303		30 AUG 10	NAVIGATION - DDRMI - REMOVE DDRMI VOR/ADF/DME INDICATORS
	Applicable to: ALL			
	K7790		30 AUG 10	DOORS-PASSENGER COMPARTMENT FIXED INTERIOR DOORS-INSTALL ELECTRICAL COCKPIT DOOR RELEASE SYSTEM
	Applicable to: ALL			
	P10763		25 NOV 11	AUTO FLIGHT - FMGC - INSTALL FMGC HWL H2I11 (RELEASE 1A) ON IAE AND PW A/C
	Applicable to: ALL			
	K0070		30 AUG 10	AIR CONDITIONING - CARGO COMPARTMENT - VENTILATION - INSTALL SYSTEM IN AFT COMPARTMENT -
	Applicable to: ALL			
	K0064		30 AUG 10	LIGHTS - EXTERIOR LIGHTS - INSTALL SYNCHRONIZED STROBE LIGHTS
	Applicable to: ALL			
	P3878		25 NOV 11	FLIGHT CONTROLS-INTRODUCE ELAC STD L69J
	Applicable to: ALL			
	P7372		25 NOV 11	AUTOFLIGHT - FMGC DEFINE AND INSTALL FMGC IAE C13043BA01 THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	J1617		30 AUG 10	FLIGHT CONTROLS-GENERAL- DELETION OF L.A.F. FEATURE FROM A320 A/C (SERIAL SOLUTION)
	Applicable to: ALL			
	P5706	31-1257 01	30 AUG 10	INDICATING RECORDING SYSTEM-FWC- INTRODUCE FWC STANDARD H2/E3P
	Applicable to: ALL			
	P8486		25 NOV 11	AUTO-FLIGHT - FMGC - INSTALL FMGC IAE C13043BA02 (STD S2I9) THALES(EQUIPPED WITH FMS2 THALES/SMITH)
	Applicable to: ALL			
	P9522		30 AUG 10	AUTO-FLIGHT-MULTIPURPOSE CONTROL AND DISPLAY UNIT(MCDU) - ACTIVATE BACK-UP NAV FUNCTION
	Applicable to: ALL			

M(1)	MODIFICATION	Linked SB	Incorp. Date	Title
	P4885	34-1197 13	30 AUG 10	NAVIGATION - GPWS - ACTIVATE ENHANCED FUNCTIONS OF THE EGPWS
	Applicable to: ALL			
	P7455		30 AUG 10	ELECTRICAL POWER-GENERAL-CHANGE IFE POWER SUPPLY BUSBARS INTO SHEDDABLE BUSBARS 220XP AND 212PP
	Applicable to: ALL			
	P5253		30 AUG 10	NAVIGATION - ADIRS - REPLACE ADIRS CDU BY MSU (MODE SELECTOR UNIT)
	Applicable to: ALL			
	K7727		30 AUG 10	EQUIPMENT/FURNISHINGS - MISCELLANEOUS EMERGENCY EQPT - INSTALL AN HONEYWELL ELT WITH CONTROL PANEL IN COCKPIT
	Applicable to: ALL			
	K6156	21-1118 00	30 AUG 10	AIR CONDITIONING-PACK TEMP.CTRL INTRODUCE MODIFIED PACK TEMP. CTRL P/N 759D0000-02
	Applicable to: ALL			
	P1970		30 AUG 10	COMMUNICATIONS - INSTALL HF1 FOR EROPS
	Applicable to: ALL			
	P4983		25 NOV 11	AUTO-FLIGHT-FAC INTRODUCE FAC STD BAM 0513
	Applicable to: ALL			
	P4539		30 AUG 10	AUTOFLIGHT-FLIGHT CONTROL UNIT- (FCU) INTRODUCE SEXTANT MODULAR FCU
	Applicable to: ALL			
	K12825		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS DIRECTOR P/N -333B
	Applicable to: ALL			
	K12824		25 NOV 11	COMMUNICATIONS - CIDS - INSTALL CIDS AND SDF OBRM SOFTWARE P/N -33A AND CAM UPDATE
	Applicable to: ALL			
	P4121		30 AUG 10	EXHAUST-THRUST REVERSER CONTROL AND INDICATING-ACTIVATE ADDITIONAL THRUST REVERSER LOCK CONTROL
	Applicable to: ALL			
	K3901		30 AUG 10	COMMUNICATIONS-CIDS-INTRODUCE MODIFIED DIRECTOR POWER SUPPLY PRINCIPLE
	Applicable to: ALL			
	P5451		30 AUG 10	ELECTRICAL POWER - GENERAL - AC-DC MAIN DISTRIBUTION - INSTALL AC-DC SHEDDABLE BUSBARS
	Applicable to: ALL			
	P5669	34-1177 17	30 AUG 10	NAVIGATION - TCAS - INSTALL ALLIED SIGNAL TCAS COMPUTER P/N 066-50000-2220 (WITH CHANGE 7.0)
	Applicable to: ALL			
	P8710		25 NOV 11	NAVIGATION - WEATHER RADAR SYSTEM - INSTALL COLLINS TRANSCEIVER FULLY COMPLIANT WITH MULTI-SCAN FUNCTION
	Applicable to: ALL			
	K3867		30 AUG 10	HYDRAULIC POWER-AUXILIARY HYDRAULIC POWER-RAT-INTRODUCE MODIFIED RAT (NEW BEARING)
	Applicable to: ALL			
	P6703	22-1102 02 22-1226 02	30 AUG 10	AUTO-FLIGHT-FLIGHT AUGMENTATION COMPUTER-INTRODUCE FAC SOFTWARE STANDARD P/N B397BAM0515
	Applicable to: ALL			

(1) Evolution code : N=New, R=Revised, E=Effectivity

Intentionally left blank

GENERAL

Intentionally left blank

GEN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

Important..... GEN.01
General Information..... GEN.02

Intentionally left blank

IMPORTANT

SCOPE

The QRH contains some specific procedures which are not displayed on the ECAM.
As a general rule, procedures displayed on the ECAM are not provided in the QRH (Refer to FCOM PRO/ABN).

TASK SHARING FOR ABN/EMER PROC

The principles and guidelines described under TASK SHARING AND RESPONSIBILITIES in FCOM PRO/NOR/SOP remain applicable during emergency and abnormal procedures with the following additions:

PF - Pilot Flying - Responsible for:
- Thrust levers (for flight path and airspeed control)
- Flight path and airspeed control
- Aircraft configuration (request confirguration change)
- Navigation
- Communications
- Monitoring of all actions associated with ECAM or paper checklists

PM - Pilot Monitoring - Responsible for:
- Monitoring and reading aloud the ECAM and checklists
- Performing required action or actions requested by the PF, if applicable

Note: Under no circumstances shall the PM manipulate thrust lever, engine master switch, fire switch, IR/ADR, or any guarded switch or pushbutton without confirmation by the PF.

Memory Items

When emergency/abnormal procedures are actioned from memory, the required actions are performed, as appropriate, by the PF and PM.

When all memory actions are complete and the aircraft is stabilised on the correct flight path, the:
- **PF** shall confirm that the associated actions have been completed correctly.
- **PM** shall ensure that all the required memory actions have been carried out by reference to ECAM or checklist, and then complete the remainder of the procedure.

ECAM CLEAR

DO NOT CLEAR ECAM WITHOUT CROSS-CONFIRMATION OF BOTH PILOTS.

ABN/EMER PROC INITIATION

Procedures are initiated on pilot flying command.

No action will be taken (apart from audio warning cancel through MASTER WARN light) until:
- The appropriate flight path is established and,
- The aircraft is at least 400 ft above the runway, if a failure occurs during takeoff, approach, or go around.

GENERAL INFORMATION

EFFECTIVITY

As QRH is published at aircraft level, each paper page has only one effectivity.

PAGE NUMBERING

The page numbering follows the following rules:

00, 01, 02, ...	:	Numbering for ABN, GEN, OPS, OEB PROC sections
01A, 03B, ...	:	Numbering and index (A, B, ...) for procedures written on several paper pages
1/10, 3/5, ...	:	Numbering for NP-NP, FPE-SPO
C1, C2	:	Index of the back cover page interior
C3	:	Index of the back cover page exterior
"BLANK"	:	Index of an intentionally left blank paper page created to ensure the correct format of the next chapter (begins on recto page)

PRELIMINARY PAGES WITHIN THE QRH BINDER

It is essential for Airlines to correctly manage the updates of the QRH. For this purpose, Airbus publishes Preliminary Pages with each QRH revision. These Preliminary Pages are used as reference documents for Airlines to manage the QRH updates, e.g. easily insert the revisions, identify the modifications that impact the QRH, get a synthesis of changes introduced with each revision. However, when the QRH revisions have been incorporated in accordance with the information given in the Preliminary Pages, these pages do not bring operational added value and therefore are no longer useful in the QRH binder for any operational purposes. Therefore, to minimize the size of the QRH binder on board the aircraft and to optimize the operational use of the QRH, Airbus has no objection that the Airlines remove the Preliminary Pages from the QRH after the revisions have been incorporated in the QRH and all checks performed to confirm the revisions have been correctly incorporated. You will find below the list of Preliminary Pages that may be removed from the QRH binder :

- The Transmittal Letter
- The Filing Instructions
- The List of Effective Documentary Units (the LESS is the reference)
- The list of Modifications
- The Summary of Highlights
- The front pages of all QRH sections
- The Table of Contents (TOC) of the General section
- The Table of Contents (TOC) of the Operations Engineering Bulletins section (the LEOEB is the reference)
- All pages numbered "00" and "00A" of the Operations Engineering Bulletins section (approval DU of the OEBs)
- This General Information (GEN.02) section

ABNORMAL AND EMERGENCY PROCEDURES

Intentionally left blank

ABN-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/4
SUMMARY OF HIGHLIGHTS..... 1/8

ABN-21 Air Conditioning/Ventilation/Pressurization

CABIN OVERPRESSURE.....21.01

[1] **ABN-22 Auto Flight**

LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset).....22.01
LOW ENERGY WARNING.....22.02

ABN-24 Electrical

ELEC EMER CONFIG SYS Remaining..... 24.01
[2] ELEC EMER CONFIG Summary.....24.02

ABN-25 Equipment

COCKPIT DOOR FAULT..... 25.01

ABN-26 Fire Protection

[redacted] SMOKE/FUMES REMOVAL [redacted]..... 26.01
[3] [redacted] SMOKE/FUMES/AVNCS SMOKE [redacted].....26.02

ABN-27 Flight Controls

LANDING WITH SLATS or FLAPS JAMMED.....27.01
SIDESTICK/RUDDER PEDALS STIFF..... 27.03
RUDDER JAM..... 27.04
STABILIZER JAM..... 27.05

ABN-28 Fuel

FUEL IMBALANCE..... 28.01
FUEL LEAK.....28.02
GRVTY FUEL FEEDING..... 28.03
ACT UNUSABLE PROC..... 28.06

ABN-29 Hydraulic

[4] HYD B + Y SYS LO PR Summary.....29.01
[5] HYD G + B SYS LO PR Summary..... 29.02
[6] HYD G + Y SYS LO PR Summary.....29.03

ABN-30 Ice and Rain Protection

DOUBLE AOA HEAT FAILURE..... 30.01

ABN-31 Indicating / Recording Systems

DISPLAY UNIT FAILURE..... 31.01
ECAM SINGLE DISPLAY..... 31.02

[7] **ABN-32 Landing Gear**

LOSS OF BRAKING 32.01
RESIDUAL BRAKING PROC..... 32.02
L/G GRAVITY EXTENSION..... 32.03
LDG WITH ABNORMAL L/G..... 32.04

ABN-34 Navigation

ADR 1 + 2 + 3 FAULT..... 34.01
NAV FM / GPS POS DISAGREE..... 34.03
EGPWS ALERTS 34.04
IR ALIGNMENT IN ATT MODE..... 34.05
TCAS WARNINGS 34.06
UNRELIABLE SPEED INDICATION/ADR CHECK PROC 34.07

ABN-36 Pneumatic

AIR DUAL BLEED FAULT..... 36.01

ABN-70 Engines

[8] ENG DUAL FAILURE - FUEL REMAINING 70.01
[9] ENG DUAL FAILURE - NO FUEL REMAINING 70.02
ENG RELIGHT (in flight)..... 70.03
ENG 1(2) STALL..... 70.04
ENG TAILPIPE FIRE..... 70.05
HIGH ENGINE VIBRATION..... 70.06

[10] **ABN-80 Miscellaneous**

Circling Approach with One Engine Inoperative..... 80.01
Straight-in-Approach with One Engine Inoperative..... 80.01
Bomb on Board..... 80.02
Ditching 80.03
Forced Landing 80.04
EMER Descent 80.05
OVERWEIGHT LANDING..... 80.06
Stall Recovery 80.07
Stall Warning at Lift-Off 80.07
TAILSTRIKE..... 80.08

VOLCANIC ASH ENCOUNTER.....80.09
[redacted] WINDSHEAR AHEAD [redacted].....80.10
[redacted] WINDSHEAR [redacted].....80.10A
WINDSHIELD/WINDOW ARCING.....80.11
WINDSHIELD/WINDOW CRACKED.....80.12
ECAM Advisory Conditions.....80.13
Tripped C/B Re-Engagement.....80.14
Computer Reset.....80.15
11 Computer Reset Table.....80.16
[redacted] EMERGENCY EVACUATION [redacted].....80.C2

Intentionally left blank

Localization Title	Page	ID	Reason
ABN-PLP-TOC Auto Flight	1/4	1	Documentation update: Deletion of the "00010790.0002001 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)" documentary unit.
ABN-PLP-TOC ELEC EMER CONFIG Summary	1/4	2	Documentation update: Deletion of the "00010635 ELEC EMER CONFIG Summary - Vref Table " table of content entry.
			Documentation update: Deletion of the "00010639 ELEC EMER CONFIG Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00010640 ELEC EMER CONFIG Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010635.0006001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010635.0012001 ELEC EMER CONFIG Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00010639.0005001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010639.0046001 ELEC EMER CONFIG Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00010640.0001001 ELEC EMER CONFIG Summary - Additional Information" documentary unit.
ABN-PLP-TOC SMOKE/FUMES/AVNCS SMOKE	1/4	3	Documentation update: Deletion of the "00010816.0001001 SMOKE/FUMES/AVNCS SMOKE - ELEC EMER CONFIG" documentary unit.
ABN-PLP-TOC HYD B + Y SYS LO PR Summary	1/4	4	Documentation update: Deletion of the "00012403 HYD B + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012404 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00012474 HYD B + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00010689.0002001 HYD B + Y SYS LO PR Summary - Cruise" documentary unit.
			Documentation update: Deletion of the "00012403.0002001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012403.0022001 HYD B + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012404.0007001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012404.0047001 HYD B + Y SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012474.0001001 HYD B + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC HYD G + B SYS LO PR Summary	1/4	5	Documentation update: Deletion of the "00012405 HYD G + B SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012406 HYD G + B SYS LO PR Summary - ALD with Failure without REV" table of content entry.
			Documentation update: Deletion of the "00010702 HYD G + B SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012405.0002001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012405.0022001 HYD G + B SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012406.0010001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00012406.0048001 HYD G + B SYS LO PR Summary - ALD with Failure without REV" documentary unit.
			Documentation update: Deletion of the "00010702.0001001 HYD G + B SYS LO PR Summary - Additional Information" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC HYD G + Y SYS LO PR Summary	1/4	6	Documentation update: Deletion of the "00012407 HYD G + Y SYS LO PR Summary - Vref Table" table of content entry.
			Documentation update: Deletion of the "00012408 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" table of content entry.
			Documentation update: Deletion of the "00012556 HYD G + Y SYS LO PR Summary - Additional Information" table of content entry.
			Documentation update: Deletion of the "00012407.0002001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012407.0022001 HYD G + Y SYS LO PR Summary - Vref Table" documentary unit.
			Documentation update: Deletion of the "00012408.0010001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012408.0048001 HYD G + Y SYS LO PR Summary - ALD with Failure without Rev" documentary unit.
			Documentation update: Deletion of the "00012556.0001001 HYD G + Y SYS LO PR Summary - Additional Information" documentary unit.
ABN-PLP-TOC Landing Gear	2/4	7	Documentation update: Deletion of the "00010838.0001001 LDG WITH ABNORMAL L/G" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - FUEL REMAINING	2/4	8	Documentation update: Deletion of the "00010849.0014001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0015001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010849.0017001 ENG DUAL FAILURE - FUEL REMAINING" documentary unit.
ABN-PLP-TOC ENG DUAL FAILURE - NO FUEL REMAINING	2/4	9	Documentation update: Deletion of the "00010848.0003001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00010848.0011001 ENG DUAL FAILURE - NO FUEL REMAINING" documentary unit.
			Documentation update: Deletion of the "00012040.0010001 ENG DUAL FAILURE - NO FUEL REMAINING - DITCHING" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Miscellaneous	2/4	10	Documentation update: Deletion of the "00012568 VAPP Calculation" table of content entry.
			Documentation update: Deletion of the "NG00819 Use of the LDG CONF / APPR SPD / LDG DIST Tables" table of content entry.
			Documentation update: Deletion of the "NG00820 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY" table of content entry.
			Documentation update: Deletion of the "NG00821 LDG CONF/APPR SPD/LDG DIST Table - WET RWY" table of content entry.
			Documentation update: Deletion of the "NG00822 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY" table of content entry.
			Documentation update: Deletion of the "00010898.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010898.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010899.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010899.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00012568.0002001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00012568.0004001 VAPP Calculation" documentary unit.
			Documentation update: Deletion of the "00010870.0001001 Use of the LDG DIST Factors" documentary unit.
			Documentation update: Deletion of the "00010871.0001001 LDG CONF / APPR SPD / LDG DIST Computation for an Independent Failure" documentary unit.
			Documentation update: Deletion of the "00010872.0001001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010872.0002001 LDG CONF / APPR SPD / LDG DIST Computation for Multiple Failures" documentary unit.
			Documentation update: Deletion of the "00010876.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010876.0003001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011053.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011053.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010877.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010877.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010878.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010878.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010879.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010880.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010880.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010880.0004001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010881.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010881.0005001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010882.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010883.0001001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010883.0002001 LDG CONF/APPR SPD/LDG DIST Table - DRY RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010884.0003001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010884.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011054.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011054.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010885.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010885.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010886.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010886.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010887.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010887.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010888.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010888.0004001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010889.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
			Documentation update: Deletion of the "00010889.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010889.0005001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010890.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010890.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 36 - BLEED" documentary unit.
			Documentation update: Deletion of the "00010891.0001001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010891.0002001 LDG CONF/APPR SPD/LDG DIST Table - WET RWY - 70 - ENG" documentary unit.
			Documentation update: Deletion of the "00010892.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00010892.0003001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 24 - ELEC" documentary unit.
			Documentation update: Deletion of the "00011055.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00011055.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - S/F" documentary unit.
			Documentation update: Deletion of the "00010893.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010893.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 27 - F/CTL" documentary unit.
			Documentation update: Deletion of the "00010894.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010894.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 29 - HYD" documentary unit.
			Documentation update: Deletion of the "00010895.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010895.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 30 - A.ICE" documentary unit.
			Documentation update: Deletion of the "00010896.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0004001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010896.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 32 - BRK" documentary unit.
			Documentation update: Deletion of the "00010897.0001001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0002001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.
			Documentation update: Deletion of the "00010897.0005001 LDG CONF/APPR SPD/LDG DIST Table - CONTA RWY - 34 - NAV" documentary unit.

Localization Title	Page	ID	Reason
ABN-PLP-TOC Computer Reset Table	3/4	11	Documentation update: Deletion of the "00010912.0002001 Computer Reset Table - 26 - Fire" documentary unit.
			Documentation update: Deletion of the "00010909.0002001 Computer Reset Table - 22 - Auto Flight" documentary unit.
ABN-24 ELEC EMER CONFIG Summary - Cruise	24.02	1	Add of HF 1
			The Cruise paragraph of the ELEC EMER CONFIG Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-24 ELEC EMER CONFIG Summary - Approach	24.02	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-24 ELEC EMER CONFIG Summary - Go-Around	24.02	3	Improvement of the ELEC EMER CONFIG summary.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	1	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Deletion of information.
ABN-27 LANDING WITH SLATS or FLAPS JAMMED	27.01	2	Revision of the procedure to be in accordance with the FCOM
			Documentation update: Information "N.00010817.0001001.185" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Documentation update: Information "N.00010817.0001001.193" moved from "N.00010817.0001001.184" to "N.00010817.0001001.278"
			Solution revised to highlight that both tables, ECAM Alert and INOP SYS Tables, should be referred to in order to find the applicable Fuel Penalty Factor.
ABN-27 RUDDER JAM	27.04	3	Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-29 HYD B + Y SYS LO PR Summary - Cruise	29.01	1	The Cruise paragraph of the HYD B+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD B + Y SYS LO PR Summary - Approach	29.01	2	The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD B + Y SYS LO PR Summary - Go-Around	29.01	3	Addition of the reference for Fuel Penalty Factors.
ABN-29 HYD G + B SYS LO PR Summary - Cruise	29.02	4	The Cruise paragraph of the HYD G+B SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + B SYS LO PR Summary - Approach	29.02	5	Documentation update: Deletion of information.
			Documentation update: Information "N.00010698.0001001.018" moved from "N.00010698.0001001.010" to "N.00010698.0001001.043"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + B SYS LO PR Summary - Go-Around	29.02	6	Addition of the reference for Fuel Penalty Factors.
			Documentation update: Deletion of information.
ABN-29 HYD G + Y SYS LO PR Summary - Cruise	29.03	7	The Cruise paragraph of the HYD G+Y SYS LO PR Summary is updated to take into account the introduction of the In-flight Landing Distance. The recommended landing configuration is now provided in the Approach paragraph. The approach speed calculation is removed instead a cross reference to the QRH In-Flight Landing performance section is provided.
ABN-29 HYD G + Y SYS LO PR Summary - Approach	29.03	8	Documentation update: Information "N.00010705.0001001.022" moved from "N.00010705.0001001.020" to "N.00010705.0001001.053"
			The recommended landing configuration is moved from the Cruise paragraph.
ABN-29 HYD G + Y SYS LO PR Summary - Landing	29.03	9	Improvement of the HYD G + Y SYS LO PR summary.

Localization Title	Page	ID	Reason
ABN-29 HYD G + Y SYS LO PR Summary - Go-Around	29.03	10	Documentation update: Information "N.00010707.0001001.017" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Documentation update: Information "N.00010707.0001001.022" moved from "N.00010707.0001001.015" to "N.00010707.0001001.034"
			Addition of the reference for Fuel Penalty Factors.
ABN-32 LDG WITH ABNORMAL L/G	32.04	1	Documentation update: Addition of "LDG WITH ABNORMAL L/G" documentary unit
ABN-34 ADR 1+2+3 FAULT - FWS PAGE	34.01	1	Documentation update: Information "N.00012012.0002001.010" moved from "N.00012012.0002001.009" to "N.00012012.0002001.055"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC	34.07	2	Revision of the UNRELIABLE SPEED INDICATION/ADR CHECK PROC procedure, in order to specify that: In the case of go-around with flaps FULL, the flight crew must retract the flaps to CONF 3 and maintain the flaps at CONF 3.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Pitch & Thrust Table)	34.07	3	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Level-Off (Troubleshooting)	34.07	4	Content solution revised to add "Refer to" in order to be consistent with the FCOM procedure.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	5	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	6	Improvement of pitch and thrust tables display.
ABN-34 UNRELIABLE SPEED INDICATION/ADR CHECK PROC - Climb/Cruise/Descent (Pitch & Thrust Tables)	34.07B	7	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07B	8	Improvement of pitch and thrust tables display.
ABN-34 Unreliable Speed Indication/ADR Check PROC - Approaches (Pitch & Thrust Tables)	34.07C	9	Improvement of pitch and thrust tables display.
ABN-36 AIR DUAL BLEED FAULT	36.01	1	Documentation update: Information "N.00010847.0001001.119" moved from "N.00010847.0001001.118" to "N.00010847.0001001.283"
			Documentation update: Information "N.00010847.0001001.275" moved from "N.00010847.0001001.274" to "N.00010847.0001001.281"
			Documentation update: Deletion of information.
			Content revised to Delete the reference to the landing distance factors because they are no longer applicable.
			Documentation update: Information "N.00010847.0001001.126" moved from "N.00010847.0001001.125" to "N.00010847.0001001.282"
			Documentation update: Information "N.00010847.0001001.102" moved from "N.00010847.0001001.101" to "N.00010847.0001001.284"
ABN-70 ENG RELIGHT (in flight)	70.03	1	Addition of a note in order to standardize the information throughout the QRH.
ABN-70 ENG TAILPIPE FIRE	70.05	2	Documentation update: Information "N.00010852.0001001.005" moved from "N.00010852.0001001.001" to "N.00010852.0001001.001"
			Update of the procedure, inversion of the two first actions.
ABN-80 Forced Landing	80.04	1	Administrative update: No technical change.

Localization Title	Page	ID	Reason
ABN-80 EMER Descent	80.05	2	DU revised to change must to should to give the flight crew greater flexibility.
			Introduction of the instruction to initiate the Emergency Descent in the section of the immediate actions. This aims at standardizing the paper procedure with the ECAM action lines of the CAB PR EXCESS CAB ALT alert.
ABN-80 VOLCANIC ASH ENCOUNTER	80.09	3	Addition of a reminder of the "COCKPIT WINDOW OPEN" speed limitation.
ABN-80 WINDSHIELD/WINDOW CRACKED	80.12	4	Addition of a missing note.
			Documentation update: Deletion of information.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	5	Documentation update: Deletion of information.
			Addition of information for the ELAC or SEC reset malfunction.
			Addition of a note for the ECAM warning "ELAC 1(2) FAULT". When an ELAC is reset on ground: the crew must check the pitch trim position and must also perform a flight controls check.
ABN-80 Computer Reset Table - 27 - Flight Controls	80.16C	6	Addition of information regarding the SEC reset on ground after the flight control check.
			Documentation update: Deletion of information.

CABIN OVERPRESSURE

Apply the following procedure (not displayed on ECAM) in case of total loss of the cabin pressure control leading to overpressure

PACK 1 or 2 ..... OFF
BLOWER + EXTRACT ..... OVRD
Cabin air is extracted overboard.
ΔP ..... FREQUENTLY MONITOR

- **If ΔP >9 PSI**
  PACK 1+2 ..... OFF

  LAND ASAP

Before 10 min from landing:
PACK 1+2 ..... OFF
BLOWER + EXTRACT ..... AUTO

CAUTION	Check that ΔP is zero before opening the doors.

Intentionally left blank

LOSS OF FMS DATA IN DESCENT/APPROACH (SEVERE RESET)

AP/FD lateral and vertical selected modes, and A/THR, are available immediately after the reset. If necessary, the pilot may perform the FCU selections for short-term navigation.

When the FMS has automatically recovered:
- The database cycle may have changed
- The FMGS does not autotune the ILS and ADF
- The FMS position bias is lost
- Lateral and vertical managed modes cannot re-engage
- The "CAB PR LDG ELEV FAULT" message is displayed on the ECAM
- A "MAP NOT AVAIL" message may be displayed on one ND.

Depending on the flight phase, apply the following procedure(s) as appropriate:

■ INITIAL APPROACH OR CLOSE TO ILS INTERCEPTION:

● When the system has recovered:

Access the RAD NAV Page, and manually tune the ILS (preferably using IDENT). Enter the ILS course, if a frequency has been entered.

Fly in selected speed.

Note:
- *LOC and G/S guidance modes are available*
- *VLS speed is still available and displayed on the PFD*
- *Missed approach trajectory is not available.*

■ DESCENT (IF TIME PERMITS) :

● When the system has recovered:

Select the initial database

Perform DIR TO a downpath waypoint. Select heading, if required.

Perform a LAT REV at the downpath waypoint and redefine the DESTINATION in the NEW DEST field.

Redefine the arrival and/or the approach procedure.

Select the FUEL PRED Page, and enter the GW.

Activate the APPROACH phase.

Enter destination data on the PERF APPR Page, as required. Managed speed is available.

LOW ENERGY WARNING

The “SPEED SPEED SPEED” synthetic voice sounds every 5 s whenever the aircraft energy goes below a threshold under which thrust must be increased.

“SPEED SPEED SPEED”

Increase the thrust until the warning stops and, depending on the circumstances, adjust the pitch accordingly.

ELEC EMER CONFIG SYS REMAINING

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
AIR COND PRESS	PRESS AUTO SYS 1	Norm	Norm	Norm
	MAN PRESS CTL	Inop	Inop	Inop (a)
	RAM AIR	Norm	Norm	Norm
	PACK VALVE 1	Norm	Closure Inop	Closure Inop
	PACK VALVE 2	Closure Inop	Closure Inop	Closure Inop (a)
	AVIONIC VENT	Norm	Norm	Partial
	AFT CRG ISOL VALVE	Norm	Inop	Inop
FMGS	FMGC (NAV FUNCTION)	N° 1 only	Inop	Inop
	MCDU	N° 1 only	Inop	Inop
	FAC	N° 1 only	Inop	Inop
	FCU	ch 1 only	ch 1 only	ch 1 only
COM	VHF 1	Norm	Norm	Norm
	HF1	Norm	Inop	Inop
	RMP 1	Norm	Norm	Norm
	ACP (Capt, F/O)	Norm	Norm	Norm
	CIDS	Norm	Norm	Norm
	INTERPHONE	Norm	Norm	Norm
	CVR	Norm	Inop	Inop
	LOUDSPEAKER 1	Norm	Norm	Norm
EMER EQPT	CREW OXY	Norm	Norm (b)	Norm (b)
	PAX OXY mask release (auto + man)	Norm	Inop	Inop
	SLIDES ARM/WARN	Norm	Norm	Norm
FIRE	ENG 1 LOOP	A only	A only	A only
	ENG 2 LOOP	B only	B only	B only
	APU LOOP	Inop	Inop	Inop (a)
	CARGO SMOKE DET	Channel 1	Inop	Inop
	ENG FIRE EXT.	Bottle 1 only	Bottle 1 only	Bottle 1 only
	APU FIRE EXT.	Squib A only	Squib A only	Squib A only
	CARGO FIRE EXT.	Inop	Inop	Inop (a)
	APU AUTO EXT.	Inop	Inop	Inop (a)
FLT CTL	ELAC	N° 1 only	N° 1+ N° 2	N°1+ N°2 (d)
	SEC	N° 1 only	N° 1	N° 1 (d)
	FCDC	N° 1 only	Inop	Inop
	SFCC	N° 1 only	N° 1 only	N° 1 only
	Flaps POS ind	Norm	Norm	Norm (c)
FUEL	LP VALVE	Norm	Norm	Norm
	FQI channel 1	Norm	Inop	Inop
	X FEED VALVE	Norm	Inop	Inop
	TRANSFER VALVE	Norm	Inop	Inop

Continued from the previous page

ELEC EMER CONFIG SYS REMAINING		EMER GEN RUNNING	BAT ONLY	
			IN FLIGHT	ON THE GROUND
HYD	FIRE VALVES	Norm	Norm	Norm
ICE - RAIN	WING A.ICE	Norm	Inop	Inop
	ENG A. ICE VALVE	Open	Open	Open
	CAPT PITOT	Norm	Norm	Norm *(c)*
	CAPT AOA	Norm	Inop	Inop
	RAIN REPELLENT (CAPT)	Norm	Norm	Norm
EIS	PFD 1	Norm	Norm	Norm *(c)*
	ND 1	Norm	Inop	Inop
	ECAM upper disp.	Norm	Norm	Norm *(c)*
	DMC 1 or 3	Norm	Norm	Norm *(c)*
	SDAC 1, FWC 1	Norm	Norm	Norm *(c)*
	ECAM CONT. panel	Norm	Norm	Norm
FLT INS	CLOCKS	Norm	Norm	Norm
L/G	LGCIU SYS 1	Norm	Norm	Norm
	BRK PRESS IND	Norm	Norm	Norm
	PARK BRK	Norm	Norm	Norm
LIGHTS	EMER CKPT	Norm	Norm	Norm
	EMER CAB	Norm	Norm	Norm
NAV	IR	N° 1 only *(e)*	N° 1 only *(e)*	N° 1 only *(e)*
	ADR	N° 1 only	N° 1 only	N° 1 only
	ADF	N° 1 only	Inop	Inop
	VOR-MMR	N° 1 only	N° 1 only	N° 1 only *(c)*
	DME	N° 1 only	Inop	Inop
	VOR/DDRMI	Norm	Norm	Norm *(c)*
	ATC	N° 1 only	Inop	Inop
	STBY HORIZON	Norm	Norm	Norm
	STBY COMP (LT)	Norm	Norm	Norm
	STBY ALTI (VIB)	Norm	Inop	Inop
PNEU	ENG 1 BLEED	Norm	BMC 1 inop	BMC 1 inop
	ENG 2 BLEED	BMC 2 inop	BMC 2 inop	BMC 2 inop
	APU BLEED	Inop	Inop	Inop *(a)*
	X BLEED (MAN CTL)	Norm	Inop	Inop
APU	ECB - STARTER	Norm *(f)*	Inop	Inop *(a)*
	FUEL LP VALVE	Norm	Norm	Norm
	FUEL PUMP	Norm	Norm	Norm
PWR PLT	FADEC	A + B *(g)*	A + B *(g)*	A + B *(g)*
	IGNITION	A only	A only	A only
	HP FUEL VALVE closure	Norm	Norm	Norm
MISC	MECH HORN	Norm	Norm	Norm

(a) Restored, when speed is below 100 kt.

(b) Crew oxygen valve inoperative.

(c) Lost, when speed is below 50 kt.

(d) Lost 30 s after last engine shutdown.

(e) IR2 and IR3 are lost 5 min after failure of the main generators. But, if IR3 replaces IR1 (ATT-HDG selector at CAPT3), IR3 remains supplied

(f) For APU start only.

(g) Channels A and B are self-powered above 10 % N2. If N2 is below 10 % , only Channel A is powered.

ELEC EMER CONFIG SUMMARY

CRUISE

1 MAX SPD..... 320 KT

ALTN LAW : PROT LOST
ONLY CAPT PITOT AND AOA HEATED
FUEL: CTR TK USABLE BY GRAVITY: 2 t (4 400 lb) UNUSABLE
FUEL GRAVITY FEEDING
COM: VHF1, HF1 ◁ , ATC1, RMP1, only
NAV: ILS1, VOR1, GPS1 (if MMR is installed) only
For **Landing Performance** assessment, refer to QRH FPE-IFL

APPROACH

2 CAT 2 INOP
MINIMUM RAT SPEED 140 KT
SLATS FLAPS SLOW
FOR LANDING..... USE FLAP 3

- **When L/G down:** USE MAN PITCH TRIM (DIRECT LAW).

LANDING

FLARE: Only 2 spoilers per wing. Direct law
SPOILERS: Only 2 per wing
NO REVERSER
BRAKING: ALTERNATE without antiskid
MAX BRK PR 1000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

3

- **When L/G uplocked:**

ALTN LAW : PROT LOST

COCKPIT DOOR FAULT

This procedure should be applied, if the Cockpit Door Locking System (CDLS) fails. This failure is indicated when the FAULT light on the center pedestal's COCKPIT DOOR panel comes on.
In the case of a DC BUS 2 fault, no FAULT indication appears on the center pedestal's COCKPIT DOOR panel. The CDLS is not electrically-supplied, and is inoperative.

CKPT DOOR CONT panel ..... CHECK

This panel is located on the overhead panel. It is used to identify the faulty CDLS item, and to verify the status of the pressure sensors and the three electrical latches (referred to as strikes).

- **If one or more electrical latches (strikes) are faulty:**

  The cockpit door is not intrusion-proof if two or more electrical latches are faulty.

  The system may be recovered by performing the following steps:

  Cockpit door..... OPEN
  COCKPIT DOOR sw..... SET to UNLOCK

  After 30 s:

  COCKPIT DOOR sw..... SET to NORM

- **If two pressure sensors are faulty:**

  Automatic latch release is not available, in case of cockpit decompression.

- **If no LED on the CKPT DOOR CONT panel is on:**

  The CDLS control unit is faulty, therefore, the cockpit door might unlock automatically. If it does not, consider using the mechanical override system to unlock the door.

Intentionally left blank

SMOKE/FUMES REMOVAL

EMER EXIT LIGHT..... ON

- **If fuel vapors:**

  CAB FANS.....ON
  PACK 1+2..... OFF

- **If no fuel vapors:**

  CAB FANS.....OFF
  ECON FLOW..... OFF

LDG ELEV.....10 000 FT/MEA
DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE
ATC.....NOTIFY
SMOKE/FUMES/AVNCS SMOKE PROC..... CONTINUE
While descending, continue applying the appropriate steps of the SMOKE/FUMES/AVNCS SMOKE procedure depending on the suspected smoke source.

- **At FL 100 or MEA**

  APU MASTER SW (if in ELEC EMER CONF).....ON
  PACK 1+2.....OFF
  MODE SEL.....MAN
  MAN V/S CTL..... FULL UP
  RAM AIR.....ON
  APU MASTER SW.....OFF

  - **If smoke persists, open CKPT window:**

    MAX SPEED.....200 KT
    COCKPIT DOOR.....OPEN
    HEADSETS.....ON
    PNF COCKPIT WINDOW..... OPEN

SMOKE/FUMES REMOVAL (Cont'd)

- **When window is open:**

  NON AFFECTED PACK(s)..... ON
  VISUAL WARNINGS (noisy CKPT).. MONITOR
  SMOKE/FUMES/AVNCS SMOKE PROC.....
  ..... CONTINUE

SMOKE/FUMES/AVNCS SMOKE

LAND ASAP

IF PERCEPTIBLE SMOKE APPLY IMMEDIATELY:

BLOWER..... OVRD
EXTRACT..... OVRD
CAB FANS.....OFF
GALY & CAB.....OFF
SIGNS.....ON
CKPT/CAB COM.....ESTABLISH

- **IF REQUIRED:**
  CREW OXY MASKS..... ON/100%/EMERG
- **IF SMOKE SOURCE IMMEDIATELY OBVIOUS, ACCESSIBLE, AND EXTINGUISHABLE:**
  FAULTY EQPT.....ISOLATE
- **IF SMOKE SOURCE NOT IMMEDIATELY ISOLATE:**
  DIVERSION.....INITIATE
  DESCENT (FL 100, or MEA, or minimum obstacle clearance altitude).....INITIATE

- **AT ANY TIME of the procedure, if SMOKE/FUMES becomes the GREATEST THREAT :**
  SMOKE/FUMES REMOVAL.....CONSIDER
  ELEC EMER CONFIG.....CONSIDER
  Refer to the end of the procedure to Set ELEC EMER CONFIG

- **At ANY TIME of the procedure, if situation becomes UNMANAGEABLE :**
  IMMEDIATE LANDING.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

AIR COND SMOKE/CAB EQUIPMENT SMOKE

- **IF AIR COND SMOKE SUSPECTED:**

APU BLEED.....OFF
BLOWER.....AUTO
EXTRACT.....AUTO
CARGO AFT ISOL VALVE.....OFF
PACK 1.....OFF

- **If smoke continues:**

PACK 1.....ON
PACK 2.....OFF

- **If smoke still continues:**

PACK 2.....ON
BLOWER.....OVRD
EXTRACT.....OVRD

SMOKE/FUMES REMOVAL.....CONSIDER

- **IF CAB EQUIPMENT SMOKE SUSPECTED:**

- **If smoke continues:**

EMER EXIT LIGHT.....ON
COMMERCIAL.....OFF
SMOKE DISSIPATION.....CHECK
FAULTY EQPT.....SEARCH/ISOLATE

- **If smoke still continues or if faulty equipment confirmed isolated:**

COMMERCIAL.....NORM

SMOKE/FUMES REMOVAL.....CONSIDER

SMOKE/FUMES/AVNCS SMOKE (Cont'd)

UNDETERMINED/AVNCS/ELECTRICAL SMOKE

- **IF SMOKE SOURCE CAN NOT BE DETERMINED AND STILL CONTINUES OR AVNCS/ELECTRICAL SMOKE SUSPECTED:**
  ELEC EMER CONFIG..... CONSIDER
- **IF SMOKE DISAPPEARS WITHIN 5 MINUTES:**
  NORMAL VENTILATION.....RESTORE

TO SET ELEC EMER CONFIG

EMER ELEC GEN 1 LINE.....OFF
EMER ELEC PWR.....MAN ON

- **WHEN EMER GEN AVAIL:**
  APU GEN.....OFF
  GEN 2.....OFF

ELEC EMER CONFIG
APPLY ECAM PROCEDURE, BUT DO NOT RESET GEN, EVEN IF REQUESTED BY ECAM.

- **AT 3 min OR 2 000 ft AAL BEFORE LANDING:**
  GEN 2.....ON
  EMER ELEC GEN 1 LINE.....ON
- **WHEN A/C IS STOPPED:**
  ALL GEN.....OFF

Intentionally left blank

LANDING WITH SLATS OR FLAPS JAMMED

1 LANDING CONF..... CONF 3

■ **Repeat the following until landing configuration is reached:**

SPEED SEL..... VFE NEXT - 5 kt

Decelerate towards VFE NEXT - 5 kt but not below VLS. In case of turbulence, to avoid VFE exceedance, the pilot may decide to decelerate to a lower speed, but not below VLS.

Note:
- *The autopilot may be used down to 500 ft AGL. As it is not tuned for abnormal configurations, its behavior can be less than optimum and must be monitored*
- *Approach with selected speed is recommended*
- *A/THR is recommended, except in the case of a G+B SYS LO PR warning*
- *OVERSPEED warning and VLS, displayed on the PFD, are computed according to the actual flaps/slats position*
- *VFE and VFE NEXT are displayed on the PFD according to the FLAPS' lever position. If not displayed, use the placard speeds*
- *If VLS is greater than VFE NEXT (overweight landing case), the FLAPS lever can be set in the required next position, while the speed is reduced to follow VLS reduction as surfaces extend. The VFE warning threshold should not be triggered.*
  In this case, disconnect the A/THR. A/THR can be re-engaged when the landing configuration is established.

As speed reduces through VFE NEXT:

FLAPS LEVER.....ONE STEP DOWN

■ **When landing configuration is established:**

DECELERATE TO CALCULATED APPROACH SPEED IN FINAL APPROACH

2 **FOR GO AROUND**

The table below provides the MAX SPEEDS for the abnormal configurations.

■ **IF SLATS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION**

SELECT CLEAN CONFIGURATION

Recommended flaps retraction speed: between MAX SPEED - 10 kt and MAX SPEED.

Recommended diversion speed: MAX SPEED - 10 kt.

■ **IF FLAPS FAULT:**

● **FOR CIRCUIT:**

MAINTAIN SLATS/FLAPS CONFIGURATION

Recommended speed: MAX SPEED - 10 kt

● **FOR DIVERSION:**

■ **If FLAPS jammed at 0**

SELECT CLEAN CONFIGURATION

Note: *Recommended speed for slats retraction is between MAX SPEED - 10 kt and MAX SPEED of actual slat/flap position.*

LANDING WITH SLATS OR FLAPS JAMMED (Cont'd)

Normal operating speeds

■ **If FLAPS jammed > 0**

MAINTAIN SLAT/FLAP CONFIGURATION

Recommended speed for diversion: MAX SPEED - 10 kt

Note:
- *In the majority of cases, VFE on PFD is equal to the MAX SPEED. In this case, VFE can be used as MAX SPEED. In case the SPD LIM flag is displayed on the PFD, use the MAX SPEED displayed on the ECAM status page*
- *In some cases, MAX SPEED - 10 kt may be a few knots higher than the VFE. In this situation, pilot may follow the VFE*
- *In case of a go-around with CONF FULL selected, the L/G NOT DOWN warning is triggered at landing gear retraction.*

<table>
<tr><th colspan="6">MAX SPEED</th></tr>
<tr><th>Flaps
Slats</th><th>F = 0</th><th>0 < F ≤ 1</th><th>1 < F ≤ 2</th><th>2 < F ≤ 3</th><th>F > 3</th></tr>
<tr><td>S = 0</td><td>NO LIMITATION</td><td rowspan="3">215 kt</td><td rowspan="3">215 kt</td><td rowspan="3">195 kt</td><td>190 kt
(Not allowed)</td></tr>
<tr><td>0 < S < 1</td><td rowspan="2">230 kt</td><td rowspan="2">190 kt</td></tr>
<tr><td>S = 1</td></tr>
<tr><td>1 < S ≤ 3</td><td colspan="2">215 kt</td><td>215 kt</td><td>195 kt</td><td>190 kt</td></tr>
<tr><td>S > 3</td><td colspan="2">190 kt</td><td>190 kt</td><td>190 kt</td><td>190 kt</td></tr>
</table>

CAUTION	For flight with SLATS or FLAPS extended, fuel consumption is increased. Refer to the fuel flow indication. As a guideline, determine the fuel consumption in clean configuration at the same altitude without airspeed limitation (e.g. From ALTERNATE FLIGHT PLANNING tables) and multiply this result by the applicable Fuel Penalty Factor provided in the QRH *Refer to QRH/FPE-FPF Fuel Penalty Factors Tables*, to obtain the fuel penalty required to reach the destination in the current configuration.

Intentionally left blank

SIDESTICK/RUDDER PEDALS STIFF

Even if the autopilot is disengaged, the sidestick and/or the rudder pedals may be stiff. This may affect either:

- Both sidesticks (CAPT and F/O) at the same time, but not the rudder pedals, or
- One sidestick and the rudder pedals at the same time.

The piloting technique remains the same: The aircraft remains responsive.
However, the flight crew should keep in mind that they may need to use extra force on the sidesticks and/or the rudder pedals.

AP DISENGAGEMENT.....CONFIRM
CONSIDER TRANSFERRING CONTROL TO PNF

- **FOR DECRAB, ROLLOUT, OR ENGINE FAILURE**
  BE PREPARED TO APPLY EXTRA FORCE ON RUDDER PEDAL

RUDDER JAM

Rudder jamming may be detected by undue (and adverse) pedal movement during rolling maneuvers.
This is because the yaw damper orders can no longer be sent to the rudder, but are fed back to the pedals.
Use ECAM F/CTL SD page for a visual check of the rudder position.

3 **FOR APPROACH**

AVOID LANDING WITH CROSSWIND

from the side where the rudder is deflected.

MAX CROSSWIND for LDG 15 kt

AUTO BRK.....DO NOT USE

FOR LANDING.....USE NORMAL CONF

SPEED AND TRAJECTORY.....STABILIZE ASAP

LDG DIST PROC.....APPLY

ON GROUND

DIFFERENTIAL BRAKING.....USE ASAP

Do not use asymmetric reverse thrust.

Use nosewheel steering handle below 70 kt.

STABILIZER JAM

The ELACs may not detect a stabilizer jam when the pitch trim wheel is jammed.
The flight control normal law remains active in this case and there is no ECAM warning.

AP..... OFF
MAN PITCH TRIM.....CHECK
The pitch trim wheel may not be fully jammed, the force needed may be higher than usual.

- **IF MAN TRIM AVAIL:**

  TRIM FOR NEUTRAL ELEV
  If manual pitch trim is available, trim to maintain the elevator at the zero position (indications on ECAM F/CTL page).

APPR PROC

- **IF MAN TRIM NOT AVAIL:**

  FOR LDG.....USE FLAP 3
  Do not select configuration full so as not to degrade the handling qualities.
  GPWS LDG FLAP 3..... ON

  CAT 2 INOP

FUEL IMBALANCE

FOB..... CHECK

Compare the FOB + FU, with the FOB at departure.
If the difference is significant, or if the FOB + FU decreases, suspect a fuel leak.

CAUTION	A fuel imbalance may indicate a fuel leak. Do not apply this procedure, if a fuel leak is suspected. *Refer to ABN-28 FUEL LEAK.*

FUEL X FEED..... ON
CTR TK L+R XFR..... OFF

- **On the lighter side:**
  FUEL PUMPS.....OFF
- **When fuel is balanced:**
  FUEL PUMPS..... ON
  CTR TK L+R XFR.....ON
  FUEL X FEED..... OFF

FUEL LEAK

A fuel leak may be detected, if:
- The sum of FOB and FU significantly less than FOB at engine start or is decreasing, or
- A passenger observes fuel spray from engine/pylon or wing tip, or
- The total fuel quantity is decreasing at an abnormal rate, or
- A fuel imbalance is developing, or
- Fuel quantity in a tank is decreasing too fast (leak from engine/pylon, or hole in a tank), or
- A tank is overflowing (due to pipe rupture in a tank), or
- The Fuel flow is excessive (leak from engine), or
- Fuel is smelt in the cabin.

If visibility permits, leak source may be identified by a visual check from the cabin.

WHEN A LEAK IS CONFIRMED

LAND ASAP

■ LEAK FROM ENGINE/PYLON CONFIRMED:

Engine fuel leak can be confirmed by excessive fuel flow indication, or a visual check.

THR LEVER (of affected engine)..... IDLE
ENG MASTER (of affected engine)..... OFF
FUEL X FEED..... USE AS RQRD

If the leak stops, the crossfeed valve can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

■ LEAK FROM ENGINE/PYLON NOT CONFIRMED or LEAK NOT LOCATED:

Stop any fuel transfer, and then monitor the depletion rate of each wing tank, to determine if the leak is from an engine or a wing (case 1), or from the Center tank or the APU feeding line (case 2).

FUEL X FEED..... MAINTAIN CLOSED

The crossfeed valve must remain closed to prevent the leak from affecting both sides.

CTR TK L+R XFR..... OFF

Each engine is fed via its associated wing tank only.

WING TANK FUEL QUANTITIES..... MONITOR

Monitor the depletion rate of each wing tank.

■ CASE 1 : IF ONE WING TANK DEPLETES FASTER THAN THE OTHER BY AT LEAST 300 kg (660 lb) IN LESS THAN 30 min:

An engine leak may still be suspected. Therefore:

THR LEVER (engine on leaking side)..... IDLE
ENG MASTER (engine on leaking side)..... OFF
FUEL LEAK..... MONITOR

- **If leak stops:**

  If the wing tank fuel quantity of the affected side stops decreasing, the engine leak is confirmed and stopped.

  CTR TK L+R XFR..... ON
  FUEL X FEED..... USE AS RQRD

  The crossfeed valves can now be opened to re-balance fuel quantity, or to enable use of fuel from both wings. Do not restart the engine.

- **If leak continues (after engine shutdown):**

  The wing tank fuel quantity of the affected side continues to decrease. If the leak has not stopped after engine shut down, a leak from the wing may be suspected.

FUEL LEAK (Cont'd)

ENGINE RESTART.....CONSIDER
CTR TK XFR (non-leaking side).....ON

CAUTION	Do not apply the FUEL IMBALANCE procedure. Approach and landing can be done, even with one full wing/one empty wing.

■ **CASE 2 : IF BOTH WING TANKS DEPLETE AT A SIMILAR RATE:**

A leak from the Center tank or the APU feeding line may be suspected.

- **If fuel smell in the cabin:**
  APU (if ON).....OFF
  This prevents additional fuel loss through the APU feeding line.
- **When fuel quantity in one wing tank is less than 3 t (6 600 lb):**
  CTR TK L+R XFR..... ON

FOR LANDING

CAUTION	Do not use reversers.

GRVTY FUEL FEEDING

ENG MODE SEL.....IGN
AVOID NEGATIVE G FACTOR

- **DETERMINE GRAVITY FEED CEILING:**

  Consult the following table to determine the flight altitude limitation.

Flight conditions at time of gravity feeding	Gravity feed ceiling
Flight time above FL 300 more than 30 min (Fuel deaerated)	Current FL(1)
Flight time above FL 300 less than 30 min (Fuel non-deaerated)	FL 300(1)
Aircraft flight level never exceeded FL 300 (Fuel non-deaerated)	FL 150(1), or 7 000 ft above takeoff airport, whichever is higher

(1) For JET B, gravity feed ceiling is FL 100 in all cases.

DESCEND TO GRVTY FEED CEILING (if applicable).

- **WHEN REACHING GRVTY FEED CEILING:**
  FUEL X FEED.....OFF

- **IF NO FUEL LEAK AND FOR AIRCRAFT HANDLING:**
  If no fuel leak, and for flight with only one engine running (this engine being fed by gravity), apply the following :

  FUEL X FEED.....ON
  BANK ANGLE..... 1° WING DOWN ON LIVE ENGINE SIDE
  RUDDER TRIM..... USE

- **WHEN FUEL IMBALANCE REACHES 1 000 kg (2 200 lb):**
  BANK ANGLE..... 2° or 3° WING DOWN ON LIVE ENG SIDE

Intentionally left blank

Intentionally left blank

ACT UNUSABLE PROC

ACT..... AUTO

This stops the pump dry running.

Intentionally left blank

HYD B + Y SYS LO PR SUMMARY

CRUISE

1

MAX SPD..... 320/0.77
MANEUVER WITH CARE
Flight controls remain in normal law.
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

2

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **L/G GRAVITY EXTENSION:**
  GRVTY GEAR EXTN handcrank.....PULL AND TURN
  (Rotate the handle clockwise 3 turns until mechanical stop)
  L/G LEVER.....DOWN
  GEAR DOWN indications.....CHECK

LANDING

FLARE Only one ELEV and two spoilers per wing
SPOILERS Only 2 per wing
REVERSER Only N°1
BRAKING NORMAL
NO NOSEWHEEL STEERING

GO-AROUND

3

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

HYD G + B SYS LO PR SUMMARY

CRUISE

4

SPD BRK.....DO NOT USE
MAX SPD..... 320/0.77
MANEUVER WITH CARE
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

5

CAT 2 INOP
SLATS SLOW/FLAPS SLOW
ATHR.....OFF
FOR LANDING.....USE FLAP 3
GPWS LDG FLAP 3.....ON

- **When SPD 200 kt:**
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
- **When L/G down:** USE MAN PITCH TRIM
  - **FOR FLAPS EXTENSION:**
    SPD SEL..... VFE NEXT- 5KT
- **When in landing CONF and in final approach:**
  DECELERATE TO CALCULATED VAPP

LANDING

FLARE: Only one ELEV and two spoilers per wing. No ailerons.
A/C slightly sluggish – Direct law
SPOILERS: Only 2 per wing
REVERSER: Only N°2
BRAKING: ALTERNATE
NO NOSE WHEEL STEERING

GO-AROUND

6

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: MAX SPD - 10 kt / 250 kt
- **For diversion:**
  SELECT CLEAN CONFIGURATION
  - **If Slats jammed at zero:**
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Slats jammed above zero:**
    Recommended speed: MAX SPD - 10 kt / 250 kt

HYD G + Y SYS LO PR SUMMARY

CRUISE

7

MAX SPD..... 320/0.77
MANEUVER WITH CARE
NO STABILIZER
ALTN LAW : PROT LOST
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)
For **Landing Performance** assessment, refer to QRH FPE-IFL.

APPROACH

8

CAT 2 INOP
SLATS SLOW / FLAPS JAMMED
FOR LANDING..... USE FLAP 3
GPWS FLAP MODE..... OFF

- **FOR FLAPS EXTENSION:**
  SPD SEL..... VFE NEXT - 5KT
- **When in CONF 3:**
  DECELERATE TO CALCULATED VAPP
- **When in CONF 3 and VAPP:**
  Stabilize at VAPP before L/G down, to be trimmed for approach.
  - **L/G GRAVITY EXTENSION:**
    GRVTY GEAR EXTN handcrank..... PULL AND TURN
    (Rotate the handle clockwise 3 turns until mechanical stop)
    L/G LEVER..... DOWN
    GEAR DOWN..... CHECK
    Disregard "USE MANUAL PITCH TRIM".
    MAN TRIM Unusable

LANDING

9

FLARE: PITCH AUTHORITY REDUCED (No stabilizer).
MAN TRIM Unusable
When Flaps jammed close to zero, perform positive landing.
Only 1 spoiler per wing – Direct law
SPOILERS: Only 1 per wing
NO REVERSER
BRAKING: BRK Y ACCU PR ONLY (7 applications)
MAX BRK PR 1 000 PSI
NO NOSEWHEEL STEERING

GO-AROUND

10

NO GEAR RETRACTION
FUEL: Increased fuel consumption (Refer to QRH FPE-FPF)

- **For circuit:**
  MAINTAIN SLATS/FLAPS CONFIGURATION
  Recommended speed: VAPP
- **For diversion:**
  - **If Flaps jammed at zero:**
    SELECT CLEAN CONFIGURATION
    Normal operating speeds (MAX SPEED = 250 kt)
  - **If Flaps jammed above zero:**
    MAINTAIN SLATS/FLAPS CONFIG

Continued from the previous page

GO-AROUND
Recommended speed: VAPP

DOUBLE AOA HEAT FAILURE

- **If icing conditions cannot be avoided:**
  One of affected ADRs..... OFF
  NAV ADR DISAGREE

Intentionally left blank

DISPLAY UNIT FAILURE

■ AFFECTED DU FLASHES INTERMITTENTLY:

This phenomenon may be due to Intermittent Electrical Power Supply Interruptions. It is evidenced by one, or a combination, of the following:
- Flashing of PFD, ND, ECAM DUs (blank screen or diagonal line),
- Flashing of MCDU,
- Intermittent flight control law reversion.

■ IF THE CAPTAIN SIDE IS AFFECTED:

Captain PFD, captain ND, Upper ECAM or MCDU 1 is(are) affected.

GEN 1.....OFF

■ If DUs do not stop flashing:

GEN 1..... ON

■ If DUs stop flashing:

GEN 1.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ IF THE FIRST OFFICER SIDE IS AFFECTED:

First officer PFD, first officer ND, lower ECAM or MCDU 2 is(are) affected.

GEN 2.....OFF

■ If DUs do not stop flashing:

GEN 2..... ON

■ If DUs stop flashing:

GEN 2.....KEEP OFF

Keep the generator OFF for the rest of the flight.

RUD TRIM..... CHECK/RESET

Intermittent Electrical Power Supply Interruptions may cause offset in the rudder trim. Check the need of the rudder trim to be reset using the sideslip indication.

AP and/or A/THR.....AS RQRD

APU START..... CONSIDER

■ AFFECTED DU IS BLANK or the DISPLAY IS DISTORTED:

DU (affected).....AS RQRD

The DU can be switched off.

ECAM/ND XFR (if the ECAM DUs are affected)..... USE

Transfer SD to F/O or CAPT ND.

PFD/ND XFR (if the EFIS DUs are affected).....USE

■ DIAGONAL LINE ON THE AFFECTED DU:

This failure may be caused by a DMC FAULT, or a communication interruption between the DMC and DU.

EIS DMC SWITCHING..... AS RQRD

DISPLAY UNIT FAILURE (Cont'd)

- **If unsuccessful:**

  DU (affected)..... OFF THEN ON

  Note: *The ND display may disappear, if too many waypoints and associated information are displayed. Reduce the range, or deselect WPT or CSTR, and the display will automatically recover, after about 30 s.*

■ **INVERSION OF THE EWD AND THE SD:**

ECAM UPPER DISPLAY .....OFF THEN ON

The same action on the EIS DMC SWITCHING selector produces the same effect.

ECAM SINGLE DISPLAY

Only the EWD is available. There is no SD on the other DUs.

- **To call a SYS page:**

  PRESS AND MAINTAIN the SYS Page key on the ECP.

- **OVERFLOW ON THE STATUS Page:**

  PRESS AND MAINTAIN the STS key on the ECP

  The first page of STATUS appears.

  RELEASE IT, THEN PRESS AGAIN WITHIN 2 s

  The second page of STATUS appears.

  CONTINUE UNTIL THE OVERFLOW ARROW DISAPPEARS.

  When the STS key is released for more than 2 s, the EWD reappears.

Intentionally left blank

LOSS OF BRAKING

- **IF NO BRAKING AVAILABLE:**

  REV.....MAX
  BRAKE PEDALS.....RELEASE
  A/SKID & N/W STRG.....OFF
  BRAKE PEDALS.....PRESS
  MAX BRK PR.....1000 PSI

  - **IF STILL NO BRAKING:**

    PARKING BRAKE.....SHORT AND SUCCESSIVE APPLICATIONS

RESIDUAL BRAKING PROC

- **IN FLIGHT:**

  BRAKE PEDALS.....APPLY SEVERAL TIMES

  Press the brake pedals several times. This could set to zero the residual pressure on the alternate system.

  - **IF RESIDUAL PRESSURE REMAINS:**

    A/SKID & N/W STRG selector.....KEEP ON

    - **IF AUTOBRAKE IS AVAILABLE:**

      FOR LANDING.....AUTO/BRK MED

      Using MED mode gives immediate priority to normal braking upon landing gear touchdown, which cancels residual alternate pressure.

    - **IF AUTOBRAKE IS NOT AVAILABLE:**

      JUST AFTER TOUCHDOWN.....APPLY BRAKING

      Pressing the brake pedals gives immediate priority to normal braking, which cancels residual alternate pressure.

  Beware of possible braking asymmetry after touchdown, which can be controlled by using the pedals.

  Note: *If tire damage is suspected after landing, inspection of the tires is required before taxi.*

  If the tire is deflated but not damaged, the aircraft can be taxied at low speed with the following limitations :

  1. *If one tire is deflated on one or more gears (ie. a maximum of three tires), the speed should be limited to 7 kt when turning.*
  2. *If two tires are deflated on the same main gear (the other main gear tires not being deflated) speed should be limited to 3 kt, and the nose wheel steering angle should be limited to 30 °.*

L/G GRAVITY EXTENSION

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

GRAVITY GEAR EXTN handcrank.....PULL AND TURN

Rotate the handle clockwise 3 turns until reaching the mechanical stop, even if resistance is felt.

L/G lever.....DOWN

GEAR DOWN indications (if available).....CHECK

Note:

1. *Depending on aircraft speed, the display may show the landing gear doors in the amber transit position.*
2. *In the event of gravity extension, caused by the failure of both LGCIUs, landing gear position indications on ECAM are lost. LDG GEAR light on LDG GEAR control panel remain available, if LGCIU 1 is electrically supplied.*
3. *The L/G LGCIU 2 FAULT or BRAKES SYS 1(2) FAULT warning may be spuriously triggered after a gravity extension.*
4. *If the three green downlock arrows are not on, it is possible that the handcrank is not at the mechanical stop. Check that the handcrank is firmly against the mechanical stop.*

CAUTION	Nosewheel steering is lost.

■ If successful:

Do not reset the free-fall system: This will avoid such undesirable effects as further loss of fluid, in the event of a leak, or possible landing gear unlocking, in the event of a gear selector valve jamming in the UP position.

Note: *The free-fall system may be reset in flights being used for training. If the green hydraulic system is available, resetting the free-fall system allows the landing gear doors to be closed and the nosewheel steering to operate.*
The flight crew should not reset the free-fall system on the ground after flight.

■ If unsuccessful:

LDG WITH ABNORMAL L/G procedure.....APPLY

LDG WITH ABNORMAL L/G

CAUTION	Do not apply this procedure if at least one green triangle is displayed on each landing gear on the WHEEL SD page. This is sufficient to confirm that the landing gear is downlocked. Disregard any possible L/G GEAR NOT DOWN ECAM alert at 750 ft RA and any possible GPWS "TOO LOW GEAR" aural alert.

PREPARATION

CABIN CREW.....NOTIFY
ATC.....NOTIFY
GALY & CAB pb-sw.....OFF
Consider fuel reduction to a safe minimum.

- **If NOSE L/G abnormal:**
  CG location (if possible).....AFT
  - *10 passengers from front to rear moves the CG roughly 4 % aft.*
  - *10 passengers from mid to rear moves the CG roughly 2.5 % aft.*

- **If one MAIN L/G abnormal:**
  FUEL IMBALANCE.....CONSIDER
  Open the fuel X-FEED valve and switch off the pumps on the side with landing gear normally extended.

OXYGEN CREW SUPPLY.....OFF
SIGNS.....ON
CABIN and COCKPIT.....PREPARE
- *Loose equipment secured.*
- *Survival equipment prepared.*
- *Belts and shoulder harness locked.*

APPROACH

GPWS SYS.....OFF
L/G lever.....CHECK DOWN
GRVTY GEAR EXTN handcrank..... TURN BACK TO NORMAL
AUTOBRAKE.....DO NOT ARM
EMER EXIT LT.....ON
CABIN REPORT.....OBTAIN
A/SKID & N/W STRG.....OFF
MAX BRAKE PR.....1000 PSI

- **If one or both MAIN L/G abnormal:**
  GROUND SPOILERS..... DO NOT ARM

BEFORE LANDING

RAM AIR.....ON
BRACE FOR IMPACT..... ORDER

- **If the external light condition is poor at landing:**
  DOME LT..... DIM

FLARE, TOUCH DOWN AND ROLL OUT

Engines should be shut down sufficiently early to ensure fuel is shut off before the nacelles impact, but sufficiently late to ensure adequate hydraulic supplies for the flight controls.
Engine pumps continue to supply adequate hydraulic pressure for 30 s after first engine shutdown.

LDG WITH ABNORMAL L/G (Cont'd)

REVERSE.....DO NOT USE

- **If NOSE L/G abnormal:**

  NOSE..... MAINTAIN UP

  After touchdown, keep the nose off the runway by use of the elevator. Then, lower the nose on to the runway before elevator control is lost.

  BRAKES (compatible with elevator efficiency)..... APPLY

  ENG MASTERS..... OFF

  Shutdown the engines before nose impact.

- **If one MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  At touchdown, shut down both engines.

  FAILURE SIDE WING.....MAINTAIN UP

  Use roll control, as necessary, to maintain the unsupported wing up as long as possible.

  DIRECTIONAL CONTROL.....MAINTAIN

  Use rudder and brakes (maximum 1 000 PSI) to maintain the runway axis as long as possible.

- **If both MAIN L/G abnormal:**

  ENG MASTERS..... OFF

  Shut down the engines in the flare, before touchdown.

  PITCH ATTITUDE (at touchdown).....NOT LESS THAN 6°

WHEN A/C STOPPED

ENG (all) and APU FIRE pushbutton.....PUSH

Pressing the ENG FIRE pb shuts off the related hydraulic pressure within a short time.

ENG (all) and APU AGENT..... DISCH

- **If Evacuation required:**

  EVACUATION.....INITIATE

- **If Evacuation not required:**

  CABIN CREW and PASSENGERS (PA)..... NOTIFY

  Ensure that all the landing gears are secured before initiating the disembarkation (before switching OFF the seat belts signs).

Intentionally left blank

ADR 1 + 2 + 3 FAULT

The ECAM does not display this procedure. In the case of a triple ADR failure, the ECAM only displays dual ADR warnings.

ADR P/B (all).....OFF
STBY INST.....USE

Note: *Disregard ECAM actions for AIR DATA SWTG and ATC since these have no effect in the case of a total loss of ADRs.*

ASSOCIATED PROCEDURES

F/CTL ALTN LAW
(PROT LOST)

MAX SPEED.....320/0.82

See the following table for the IAS/M relationship for 0.82

FL	*390*	*370*	*350*	*330*	*310*	*290*	*280 and below*
MAX SPD	*252*	*265*	*278*	*290*	*305*	*315*	*320*

WHEN L/G DN: DIRECT LAW

At landing gear extension, control reverts to direct law in pitch, as well as in roll .

Note: *Use manual control of cabin pressurization.*

MODE SEL.....MAN
MAN V/S CTL.....AS RQRD

1

STATUS

MAX SPEED.....320/0.82
RUD WITH CARE ABV 160 kt
See (1)

APPR PROC:

FOR LDG.....USE FLAP 3
GPWS LDG FLAP 3.....ON
APPR SPD.....VREF + 10 KT
LDG DIST PROC.....APPLY

- **FOR L/G GRVTY EXTN (not on the ECAM):**
  GRVTY GEAR EXTN handcrank.....
  .....PULL AND TURN
  L/G LEVER.....DOWN
  WHEN L/G DN : DIRECT LAW

INOP SYS

ATT LIMIT
OVSP LIMIT
ALPHA LIMIT
ADR 1+2+3
WINDSHEAR DET
RUD TRV LIM 1+2
A/THR
AP 1+2
GPWS

Other INOP SYS

CAB PR 1+2
RAT auto extension
ATC ALTI MODE
TCAS
L/G RETRACT

ADR 1 + 2 + 3 FAULT (Cont'd)

- **DURING FINAL APPR**

  V/S CTL.....FULL UP

  Note: *In case of a go-around, respect maximum speed 215 kt in CONF 1+F, due to the loss of flap auto retraction to CONF 1.*

CAUTION	*Check that the outflow valve is fully open, and that cabin altitude is at airfield elevation before opening the doors.*

(1) *At slats' extension, full rudder travel authority is recovered.*

Intentionally left blank

NAV FM / GPS POS DISAGREE

The FMS and GPS positions differ by more than a longitude threshold that depends on the latitude:
- 0.5 min for latitudes below 55 °,
- 0.9 min for latitudes at or above 55 ° and below 70 °,
- or a latitude threshold of 0.5 min, regardless of the latitude.

A/C POS.....CHECK

The following procedure is not displayed on the ECAM:

- **If the message occurs during ILS/LOC approach (LOC green):**
  DISREGARD it.
- **If the message occurs in climb, cruise, or descent:**
  CHECK navigation accuracy, using raw data.
  - **If the check is positive:**
    NAV mode and ND ARC/ROSE NAV may be used.
  - **If the check is negative:**
    HDG/TRK mode and raw data must be used.

  When possible, compare the FM position versus the GPIRS position, on the POSITION MONITOR page:
  - **If one FM position agrees with the GPIRS position on the POSITION MONITOR page:**
    Use the associated FD/AP.
  - **If not:**
    Deselect GPS and revert to basic information.
- **If the message occurs during a Non Precision Approach (NPA):**
  - **Overlay approach:**
    SELECT HDG, or TRK, and use raw data.
  - **GPS or RNAV approach:**
    GO AROUND, or fly visual, if visual conditions are met.

EGPWS ALERTS

CAUTION	During night or IMC conditions, apply the procedure immediately. Do not delay reaction for diagnosis. During daylight VMC conditions, with terrain and obstacles clearly in sight, the alert may be considered cautionary. Take positive corrective action until the alert stops or a safe trajectory is ensured.

- **″PULL UP″ – ″TERRAIN TERRAIN PULL UP″ – ″TERRAIN AHEAD PULL UP ″-"OBSTACLE AHEAD PULL UP":**

  Simultaneously:

  AP..... OFF
  PITCH..... PULL UP
  Pull to full backstick and maintain in that position.
  THRUST LEVERS..... TOGA
  SPEED BRAKES lever..... CHECK RETRACTED
  BANK..... WINGS LEVEL or ADJUST

  - **When flight path is safe and the warning stops:**
    Decrease pitch attitude and accelerate.
  - **When speed is above VLS, and vertical speed is positive:**
    Clean up aircraft as required.

- **“TERRAIN TERRAIN” “TOO LOW TERRAIN”:**
  Adjust the flight path or initiate a go-around.
- **"TERRAIN AHEAD"-"OBSTACLE AHEAD":**
  Adjust the flight path. Stop descent. Climb and/or turn, as necessary, based on analysis of all available instruments and information.
- **“SINK RATE” “DON’T SINK”:**
  Adjust pitch attitude and thrust to silence the alert.
- **“TOO LOW GEAR” - “TOO LOW FLAPS”:**
  Perform a go-around.
- **“GLIDE SLOPE”:**
  Establish the aircraft on the glideslope, or set the G/S MODE pb to OFF, if flight below the glideslope is intentional (non precision approach (NPA)).

IR ALIGNMENT IN ATT MODE

If IR alignment is lost, the navigation mode is inoperative (red ATT flag on PFD and red HDG flag on ND).
Aircraft attitude and heading may be recovered by applying the following procedure.
Aircraft must stay level with constant speed during 30 s.

MODE SELECTOR..... ATT
ALIGN light on during 30 s.
ATT MODE displayed on CDU.
LEVEL A/C ATTITUDE..... HOLD
CONSTANT A/C SPEED..... MAINTAIN
DISPLAY SYS switch..... AFFECTED SYS
DISPLAY DATA switch..... HDG

■ **MCDU INITIALIZATION:**

DATA (MCDU KEY)..... PRESS
The DATA INDEX page is displayed.
IRS MONITOR (2L KEY)..... PRESS
The IRS MONITOR page is displayed.
A/C HEADING..... ENTER
The flight crew must enter the heading in the SET HDG field (5R KEY).

■ **CDU INITIALIZATION:**

Depending on the CDU keyboard installed, an "H" may be written on the "5" key:

■ **If "H" is written on the "5" key:**

H KEY..... PRESS
Degree marker, 0 decimal point, ENT and CLR lights come on.
A/C HEADING..... ENTER

■ **If "H" is not written on the "5" key:**

A/C HEADING..... ENTER
Enter aircraft magnetic heading on CDU keyboard. Then press ENT key to enter data.
Example : to enter heading 320 °, dial 3, 2, 0, 0 then press ENT.
Heading will be displayed on the associated ND.
"HDG–ATT MODE" will be displayed on CDU.

Due to IR drift, magnetic heading has to be periodically crosschecked with standby compass and updated if required.

TCAS WARNINGS

■ **Traffic advisory: "TRAFFIC" messages:**

Do not perform a maneuver based on a TA alone.

■ **Resolution advisory : All "CLIMB" and "DESCEND" or "MAINTAIN VERTICAL SPEED MAINTAIN" or "ADJUST VERTICAL SPEED ADJUST" or "MONITOR VERTICAL SPEED" type messages**

AP (if engaged)..... OFF
BOTH FDs..... OFF

Respond promptly and smoothly to an RA by adjusting or maintaining the pitch, as required, to reach the green area and/or avoid the red area of the vertical speed scale.

Note: *Avoid excessive maneuvers while aiming to keep the vertical speed just outside the red area of the VSI, and within the green area. If necessary, use the full speed range between Vαmax and VMAX.*

Respect stall, GPWS, or windshear warning.

Notify ATC.

● **GO AROUND procedure must be performed when an RA "CLIMB" or "INCREASE CLIMB" is triggered on final approach:**

Note: *Resolution Advisories (RA) are inhibited below 900 ft.*

■ **When "CLEAR OF CONFLICT" is announced:**

Resume normal navigation in accordance with ATC clearance.

AP/FD can be re-engaged as desired.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC

2 ● **If the safe conduct of the flight is impacted:**

MEMORY ITEMS

AP/FD..... OFF
A/THR..... OFF
PITCH/THRUST:
Below THRUST RED ALT..... 15°/TOGA
Above THRUST RED ALT and Below FL 100.....10°/CLB
Above THRUST RED ALT and Above FL 100..... 5°/CLB
FLAPS (if CONF 0(1)(2)(3))..... MAINTAIN CURRENT CONF
FLAPS (if CONF FULL)..... SELECT CONF 3 AND MAINTAIN
SPEEDBRAKES..... CHECK RETRACTED
L/G..... UP
When at, or above MSA or Circuit Altitude:
Level off for troubleshooting
GPS ALTITUDE..... Display on MCDU

3 ● **To level off for troubleshooting:**

AP/FD..... OFF
A/THR..... OFF

Note: *Check the actual slat/flap configuration on ECAM, since flap auto-retraction may occur.*

PITCH / THRUST FOR INITIAL LEVEL OFF				
SLATS / FLAPS EXTENDED				
CONF	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	F	4.0 / 70.7	4.0 / 66.4	4.0 / 61.5
2	F	7.0 / 68.9	7.0 / 64.6	7.0 / 59.9
1 + F	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
1	S	7.5 / 65.5	7.5 / 61.4	7.5 / 56.5
CLEAN				
FL	Speed	Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.
When target pitch is reached, flying intended flight path, adjust thrust to target:
If the aircraft pitch tends to increase, aircraft is slow, then increase thrust;
If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

4 ## WHEN FLIGHT PATH IS STABILIZED

PROBE/WINDOW HEAT..... ON

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

TECHNICAL RECOMMENDATIONS:

Respect Stall Warning

To monitor speed, refer to IRS Ground Speed, or GPS Ground Speed variations

- **If remaining altitude indication is unreliable:**

  Do not use FPV and/or V/S, which are affected.

  ATC altitude is affected. Notify the ATC.

  Refer to GPS altitude: altitude variations may be used to control level flight, and is an altitude cue.

  Refer to Radio Altimeter.

CAUTION	If the failure is due to radome destruction, the drag will increase and therefore N1 must be increased by 5 %. Fuel flow will increase by about 27 %.

AFFECTED ADR IDENTIFICATION:

Crosscheck all speed indications and *Refer to the Operating Speeds table of the FPE In Flight Performance QRH Section (for F, S speeds)* or *Refer to Severe Turbulence table of QRH Operational Data Section in clean*

- **If at least one ADR is reliable:**

  Faulty ADR(s).....OFF

  REMAINING AIR DATA.....CONFIRM

  Alternate sources may be used to evaluate the air data:

  - *GPS altitude*
  - *GPS and IRS Ground Speeds, taking into account altitude and wind effect.*

- **If affected ADR(s) cannot be identified or all ADRs are affected:**

  ONE ADR.....KEEP ON

  Keep one ADR ON to maintain the STALL WARNING protection.

  TWO ADRs.....OFF

  This prevents the flight control laws from using two coherent but unreliable ADR data.

  LDG CONF.....USE FLAP 3

  APP SPD.....VLS +10

  LDG DIST PROC.....APPLY

  - **To return to departure airport:**

    Keep takeoff configuration preferably.

    Refer to Approaches tables.

  - **To accelerate and clean up after takeoff:**

    Accelerate and clean up the aircraft in level flight:

    THRUST.....CLB

    FLAPS.....RETRACT

    Retract from 3 or 2 to 1, once CLB thrust is set.

    Retract from 1 to 0, when the aircraft pitch is lower than the pitch for S speed (*Refer to Level-Off table*)

    Once in clean configuration, *Refer to Climb, Cruise and Descent tables*, *Refer to Approaches tables* for flight continuation.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

■ **Other cases:**

Refer to Climb, Cruise and Descent tables, *Refer to Approaches tables* for flight continuation.

5 **CLIMB**

Set the thrust to CL.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 50	270 kt	8.5 / CLB	9.0 / CLB	10.0 / CLB
FL 50 - FL 100		8.0 / CLB	8.0 / CLB	9.0 / CLB
FL 100 - FL 150		7.0 / CLB	7.0 / CLB	8.0 / CLB
FL 150 - FL 200		6.0 / CLB	6.0 / CLB	6.5 / CLB
FL 200 - FL 250	300 kt	4.0 / CLB	4.0 / CLB	4.0 / CLB
FL 250 - FL 280		3.5 / CLB	3.0 / CLB	3.0 / CLB
Above FL 280	M 0.76	3.5 / CLB	3.5 / CLB	3.5 / CLB

6 **CRUISE**

Adjust N1 to maintain approximate level flight with pitch attitude held constant. When time permits *Refer to Operational Data (OPS SEVERE TURBULENCE)* and adjust pitch to maintain level flight.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Below FL 200	270 kt	3.5 / 69.0	2.5 / 66.1	1.5 / 63.7
FL 200 - FL 280	300 kt	2.0 / 78.9	1.5 / 75.9	1.0 / 73.9
Above FL 280	M 0.76	2.5 / 83.7	2.5 / 81.6	2.0 / 79.0

7 **DESCENT**

Set the thrust to IDLE.

CLEAN				
FL	Speed	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
Above FL 280	M 0.76	-1.0 / IDLE	-1.5 / IDLE	-2.0 / IDLE
FL 280 - FL 200	300 kt	-0.5 / IDLE	-1.5 / IDLE	-2.5 / IDLE
FL 200 - FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-1.5 / IDLE
Below FL 100	270 kt	0.5 / IDLE	-0.5 / IDLE	-2.0 / IDLE
Below FL 100	G-DOT	2.0 / IDLE	2.0 / IDLE	2.0 / IDLE

8 **INITIAL AND INTERMEDIATE APPROACH IN LEVEL FLIGHT**

The approach phase between Green Dot speed (clean configuration) and the landing configuration (CONF 3), is flown in level flight.

UNRELIABLE SPEED INDICATION/ADR CHECK PROC (Cont'd)

LANDING GEAR UP IN LEVEL FLIGHT				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
0	G-DOT	5.0 / 63.4	5.0 / 59.4	5.0 / 54.6
1	S	7.5 / 65.6	7.5 / 61.4	7.5 / 56.6
1 + F (1)	S	3.5 / 67.6	3.0 / 63.8	3.0 / 58.6
2	F	7.0 / 68.5	7.0 / 64.7	7.0 / 59.9
LANDING GEAR DOWN IN LEVEL FLIGHT (EXPECT GRVTY EXTENSION)				
3	F	4.0 / 74.8	4.0 / 71.0	4.0 / 65.8

(1) Due to the fact that the speed is unreliable, the SFCC may select the 1 + F configuration in approach, instead of 1.

9 **FINAL APPROACH AT STANDARD - 3 ° DESCENT FLIGHT PATH**

LANDING GEAR DOWN				
CONF	Speed (kts)	Above 81 t	81 t - 68 t	Below 68 t
		Pitch (°) / Thrust (% N1)		
3	VLS + 10	2.0 / 60.0	2.0 / 56.0	1.5 / 51.6

FLYING TECHNIQUE TO STABILIZE SPEED

Adjust pitch in order to fly the required flight path.

When target pitch is reached, flying intended flight path, adjust thrust to target.

If the aircraft pitch tends to increase, aircraft is slow, then increase thrust.

If the aircraft pitch tends to decrease, aircraft is fast, then decrease thrust.

Intentionally left blank

AIR DUAL BLEED FAULT

1

■ If ENG1 BLEED was lost due to a:

LEAK on side 1
ENG 1 FIRE
Start Air Valve 1 failed open.

DESCENT TO FL100/MEA.....INITIATE

Descend rapidly to FL 100/MEA, to prevent excessive cabin altitude.

AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ If ENG 2 BLEED was lost due to a:

LEAK on side 2
ENG 2 FIRE
Start Air Valve 2 failed open.

X BLEED.....CHECK CLOSED
DESCENT TO FL200/MEA.....INITIATE

Descend rapidly to FL 200, to recover the bleed supply from the APU.

APU.....START

Start the APU during the descent.

● AT, OR BELOW, FL200 :

WING A.ICE.....OFF

APU BLEED must not be used for wing anti-ice.

APU BLEED.....ON
MAX FL200
AVOID ICING CONDITIONS

● IF ICE ACCRETION

APPR SPD.....VLS + 10 KT
LDG DIST PROC.....APPLY

■ In all other cases :

DESCENT.....INITIATE

Descend rapidly to FL 200, so that the bleed supply may be supplied by the APU, if the bleed system recovery is not successful.

● If both packs are available :

If both packs are operative, it can be suspected that the second bleed system failed due to excessive demand. Recovery of the second failed engine bleed may be attempted.

■ If ENG 1 BLEED is lost first :

PACK 1.....OFF
ENGINE 2 BLEED.....ON

■ If ENG 2 BLEED is lost first :

PACK 2.....OFF
ENGINE 1 BLEED.....ON

AIR DUAL BLEED FAULT (Cont'd)

- **If engine bleed recovery was not successful, or if one pack is inoperative :**

  X BLEED..... CHECK OPEN

  DESCENT TO FL200/MEA.....CONTINUE

  Descend rapidly to FL 200, to recover the bleed supply from the APU

  APU.....START

  Start the APU during the descent.

  - **AT, OR BELOW, FL200 :**

    WING A.ICE..... OFF

    APU BLEED must not be used for wing anti-ice.

    APU BLEED.....ON

    MAX FL200

    AVOID ICING CONDITIONS

    - **IF ICE ACCRETION**

      APPR SPD.....VLS + 10 KT

      LDG DIST PROC..... APPLY

ENG DUAL FAILURE - FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

LAND ASAP

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THR LEVERS..... IDLE
FAC 1.....OFF THEN ON
ENG MODE SEL.....IGN

Then, as long as none of the engines recover, apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM RELIGHT SPD.....280 KT

Note: *In the case of an "ENG DUAL FAILURE" during high power operations (i.e. climb, cruise), it is mandatory to fly at or above the optimum relight speed in order to prevent engine core lock.*

In the case of a speed indication failure (volcanic ash), Pitch attitude for optimum relight speed is:

WEIGHT	*Pitch (°)*
At or below 60 000 kg/132 000 lb	*-2.5*
70 000 kg/154 000 lb	*-1.5*
80 000 kg/176 000 lb	*-0.5*

At 280 kt, the aircraft can fly up to about 2.4 nm per 1 000 ft (with no wind).

LANDING STRATEGY.....DETERMINE
Determine whether a runway can be reached, or the most appropriate place for a forced landing/ditching.
VHF1/HF1 ◁ /ATC1.....USE
ATC.....NOTIFY

- **IF NO RELIGHT AFTER 30 SEC:**
  ENG MASTERS..... OFF 30 S/ON
  Unassisted start attempts can be repeated until successful, or until APU bleed is available.

- **IF UNSUCCESSFUL:**
  CREW OXY MASKS (Above FL 100).....ON
  - **WHEN BELOW FL 250**
    APU (IF AVAIL)..... START
  - **WHEN BELOW FL 200**
    WING ANTI ICE..... OFF
    APU BLEED.....ON
    ENG MASTERS (one at a time)..... OFF 30 S/ON

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

- **When APU bleed is available or if engine restart is definitively considered impossible:**

OPTIMUM SPEED.....REFER TO TABLE BELOW

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
94	*251*	*261*	*271*
92	*248*	*258*	*268*
88	*242*	*252*	*262*
86	*239*	*249*	*259*
84	*236*	*246*	*256*
82	*233*	*243*	*253*
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min

CABIN AND COCKPIT.....PREPARE
CABIN SIGNS..... ON
COMMERCIAL.....OFF

USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

RAM AIR..... ON

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3 and L/G DOWN) will be approximately 1.1 nm per 1 000 ft (with no wind).*

BARO..... SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN):**
  - **When in CONF 3 and VAPP:**

    GRAVITY GEAR EXTN handcrank..... PULL AND TURN

    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard "USE MAN PITCH TRIM" on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever..... DOWN

    APPROACH SPEED..... ADJUST

    Adjust the speed to the above given Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

  GND SPLR..... ARM

  MAX BRK PR..... 1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

APU MASTER SW..... OFF

BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped:**

  PARKING BRK.....ON

  ATC.....NOTIFY

  FIRE pushbutton (ENG and APU).....PUSH

  AGENTS (ENG and APU).....DISCH

  Engine Agent 2 is not available.

  - **If Evacuation required:**

    EVACUATION.....INITIATE

ENG DUAL FAILURE - FUEL REMAINING (Cont'd)

ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

■ **If Evacuation not required:**
CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED..... 160 KT
VAPP..... DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**
L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell.
If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °.
Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF
APU MASTER SW..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU)..... PUSH
AGENT (ENG and APU)..... DISCH
Engine Agent 2 is not available.
EVACUATION..... INITIATE
ELT ⋖ ..... CHECK EMITTING
If not, switch on the transmitter.

ENG DUAL FAILURE - NO FUEL REMAINING

Apply first the following actions required by the ECAM ENG DUAL FAILURE (if not already done) :

EMER ELEC PWR (if EMER GEN not in line).....MAN ON
THRUST LEVERS..... IDLE
FAC 1.....OFF THEN ON

Then apply the following paper procedure, and if time permits, clear ECAM alerts, and check the ECAM STATUS page.

OPTIMUM SPEED.....240 KT/GREEN DOT

Initially, fly 240 kt, because the PFD may not display the correct green dot speed. Then fly the green dot speed according to the following table:

GREEN DOT SPEED WITH ALL ENGINES INOPERATIVE (KNOTS)			
Weight (1 000 kg)	***At or below FL 200***	***FL 300***	***FL 400***
80	*230*	*240*	*250*
78	*227*	*237*	*247*
76	*224*	*234*	*244*
74	*221*	*231*	*241*
72	*218*	*228*	*238*
70	*215*	*225*	*235*
68	*212*	*222*	*232*
66	*209*	*219*	*229*
64	*206*	*216*	*226*
62	*203*	*213*	*223*
60	*200*	*210*	*220*
58	*197*	*207*	*217*
56	*194*	*204*	*214*
54	*191*	*201*	*211*
52	*188*	*198*	*208*

At green dot speed, the aircraft can fly up to approximately 2.5 nm per 1 000 ft (with no wind). Average rate of descent is approximately 1 700 ft/min .

LANDING STRATEGY.....DETERMINE

Determine whether a runway can be reached or the most appropriate place for a forced landing/ditching.

VHF1/HF1 ⋘ /ATC1.....USE
ATC..... NOTIFY
CREW OXY MASKS (Above FL 100).....ON
CABIN AND COCKPIT..... PREPARE
SIGNS.....ON
COMMERCIAL.....OFF
USE RUDDER WITH CARE

- **WHEN BELOW FL 150**

  RAM AIR..... ON

COMMON ACTIONS FOR THE APPROACH

APPROACH PREPARATION

Note: *Final descent slope, when configured (CONF 3; L/G DOWN), will be approximately 1.1 N/m per 1 000 ft (with no wind).*

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

BARO.....SET
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

IF FORCED LANDING ANTICIPATED

APPROACH

FOR LDG.....USE FLAP 3
Only slats extend, and slowly.
MIN APPR SPEED.....160 KT
VAPP.....DETERMINE
Vapp is the maximum between VREF + 30 kt/160 kt.

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

- **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for landing (CONF 3 ; L/G DOWN)**
  - **When in CONF 3 and VAPP**

    GRAVITY GEAR EXTN handcrank.....PULL AND TURN
    Flight controls revert to direct law at landing gear extension. Wait for CONF 3 and VAPP before extending the landing gear to enable the aircraft to be trimmed for approach. Disregard ″USE MAN PITCH TRIM″ on the PFD, because the stabilizer is frozen in the position where it was at, when the windmilling was insufficient to provide hydraulic power.
  - **When L/G downlocked**

    L/G lever.....DOWN
    APPROACH SPEED.....ADJUST
    Adjust the speed to the determined Vapp. Nevertheless, to reach the landing field/runway, the approach speed may be adjusted up to 215 kt (max speed with slats extended).

GND SPLR.....ARM
MAX BRK PR.....1000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT.....ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When the aircraft has stopped :**

  PARKING BRK.....ON
  ATC.....NOTIFY
  - **If Evacuation required :**

    EVACUATION.....INITIATE
    ELT ⋘.....CHECK EMITTING
    If not, switch on the transmitter

ENG DUAL FAILURE - NO FUEL REMAINING (Cont'd)

■ **If Evacuation not required :**

CABIN CREW and PASSENGERS (PA)..... NOTIFY

IF DITCHING ANTICIPATED

APPROACH

FOR LDG..... USE FLAP 3

Only slats extend, and slowly.

MIN APPR SPEED..... 160 KT

VAPP..... DETERMINE

Vapp is the maximum between VREF + 30 kt/160 kt:

Weight (1 000 kg)	*52*	*56*	*60*	*64*	*68*	*72*	*76*	*80*	*84*	*88*	*92*	*94*
Vapp	*160*	*160*	*160*	*160*	*163*	*167*	*171*	*174*	*178*	*181*	*185*	*187*

● **At a suitable altitude (not below 3 000 ft AGL), configure the aircraft for ditching (CONF 3 ; L/G UP)**

L/G lever..... CHECK UP

AT 2 000 FT AGL

CABIN..... NOTIFY FOR DITCHING

DITCHING pushbutton..... ON

Prefer ditching parallel to the swell

If that causes a strong crosswind, ditch into the wind..

In all cases, touch down with a pitch attitude of approximately11 °.

Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS..... OFF

AFTER DITCHING

ATC (VHF 1)..... NOTIFY

EVACUATION..... INITIATE

ELT ⋖ ..... CHECK EMITTING

If not, switch on the transmitter

ENG RELIGHT
(IN FLIGHT)

1 MAX ALTITUDE.....See below
ENG MASTER (affected).....OFF
THR LEVER (affected)..... IDLE
ENG MODE SEL.....IGN
X BLEED ..... OPEN
WING A. ICE (for starter assist).....OFF
ENG MASTER (affected)..... ON

Be aware that, contrary to an autostart on ground, the crew must take appropriate action in case of an abnormal start.
Engine light up should be achieved within 30 s after fuel flow increases.

■ **When idle is reached (AVAIL indication pulses in green) :**

ENG MODE SEL..... NORM
TCAS MODE SEL ..... check TA/RA

Check that the selector is at TA/RA since, if the ENG SHUT DOWN procedure has been applied, the TCAS mode selector may have been set at the TA position.

Affected SYS..... RESTORE

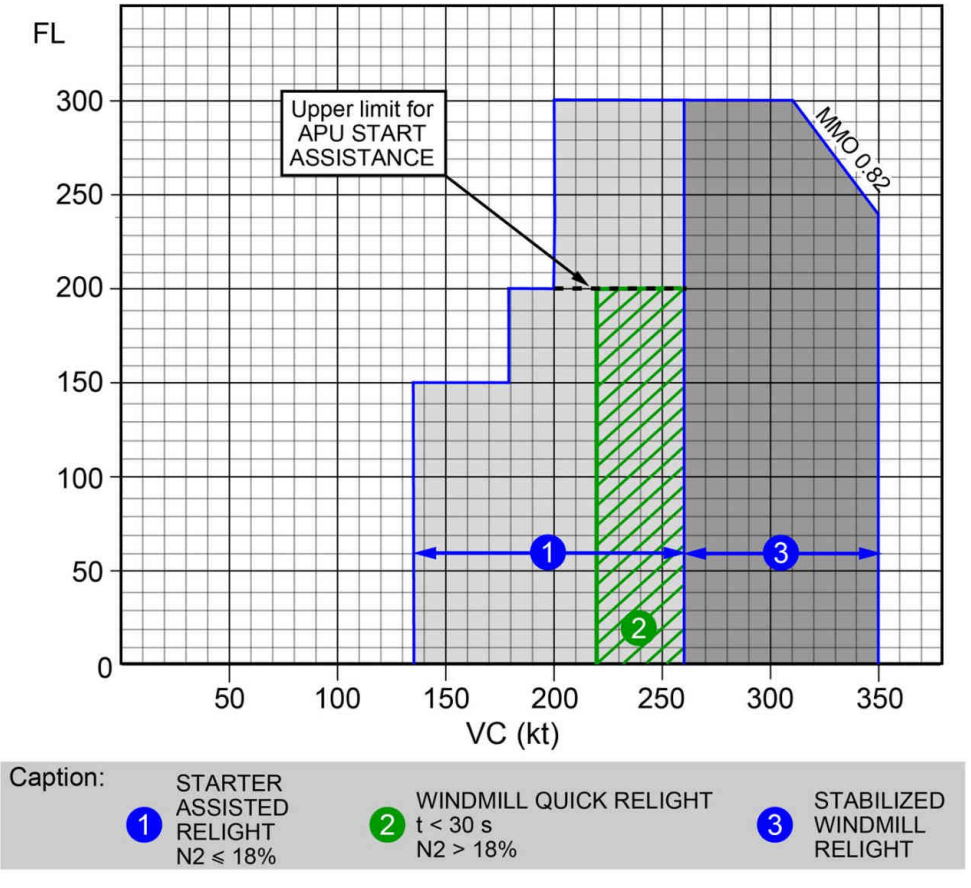
Restore affected systems, and set the X BLEED selector to AUTO.

■ **If no relight :**

ENG MASTER (affected)..... OFF

Wait 30 s before attempting a new start (to drain the engine).

ENG RELIGHT (Cont'd)
(IN FLIGHT)



ENG 1(2) STALL

■ **On the ground :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG MASTER (AFFECTED ENGINE)..... OFF

■ **In flight :**

THR LEVER (AFFECTED ENGINE)..... IDLE
ENG PARAMETERS (AFFECTED ENGINE)..... CHECK

■ **IF ABNORMAL :**

ENG MASTER (AFFECTED ENGINE)..... OFF

ASSOCIATED PROCEDURES

ENG 1(2) SHUT DOWN

■ **Normal :**

ENG A.ICE (AFFECTED ENGINE).....ON
WING A.ICE..... ON
THR LEVER (AFFECTED ENGINE).....SLOWLY ADVANCE

● **If a stall recurs :**

THR LEVER (AFFECTED ENGINE).....REDUCE

● **If a stall does not recur :**

Continue engine operation.

ENG TAILPIPE FIRE

2

CAUTION	External fire agents can cause severe corrosive damage and should, therefore, only be considered after having applied following procedure :

ENG MASTER (affected).....OFF
MAN START.....OFF
AIR BLEED PRESS.....ESTABLISH
BEACON.....ON
ENG MODE SEL.....CRANK
MAN START.....ON

- **When burning has stopped :**
  MAN START.....OFF
  ENG MODE SEL.....NORM

HIGH ENGINE VIBRATION

■ High N2 vibrations during engine start on ground :

Engine start should be aborted (if vibration indications are available), when the N2 vibration level exceeds the 6.5-units advisory threshold. The subsequent start is to be initiated after the engine has completely spooled down. This procedure may be repeated a maximum of three times. Report any N2 vibration advisory condition in the logbook.

■ High N1 or N2 vibrations in operation :

The ECAM's VIB advisory (N1 ≥ 5 units, N2 ≥ 5 units) is mainly a guideline to induce the crew to monitor engine parameters more closely.

VIB detection alone does not require engine shutdown.

Note: *1. High engine vibrations may be accompanied by cockpit and cabin smoke, and/or the smell of burning. This may be due only to compressor blade tip contact with associated abradable seals.*

2. High N1 vibrations are generally accompanied by perceivable airframe vibrations. High N2 vibrations can occur without perceivable airframe vibrations.

■ IF NO ICING CONDITIONS :

ENG PARAMETERS.....CHECK

Check engine parameters and especially EGT ; crosscheck with the other engine. Report in the maintenance log.

● If rapid increase above the advisory :

THRUST LEVER (affected engine)..... RETARD

Flight conditions permitting, reduce N1 to maintain the vibration level below the advisory threshold.

Note: *If the VIB indication does not decrease following thrust reduction, this may indicate other engine problems. Apply the adequate procedure.*

■ IF ICING CONDITIONS :

An increase in engine vibrations in icing conditions, with or without engine anti-ice, may be due to fan blades and/or spinner icing.

A/THR..... OFF

ENGINE ANTI-ICE..... CHECK

If ENG ANTI-ICE is off, switch it ON at idle fan speed, one engine after the other at an approximate 30 s interval.

THRUST LEVER (one engine at a time).....INCREASE THRUST

Increase thrust to a setting compatible with the flight phase. The VIB level will return to normal after ice is shed, despite a slight increase during acceleration. Resume normal operation.

Note: *When vibrations above the advisory level have been experienced during the flight, and if possible, shut down the engine after landing, for taxiing.*

CIRCLING APPROACH WITH ONE ENGINE INOPERATIVE

LANDING WEIGHT..... CHECK

- **if the aircraft weight is above the maximum weight for circling in CONF 3 (given in the table below):**

  The aircraft cannot maintain flight level with CONF 3 and the landing gear down.

  FOR LDG.....USE FLAP 3

  CONF 3 is preferred, to minimize a configuration change in short final.

  GPWS LDG FLAP 3..... ON

  Delay gear extension.

  Note: - *If the approach is flown at less than 750 ft RA, the "L/G NOT DOWN" warning will be triggered. The pilot can cancel the aural warning by pressing the EMER CANC pb, located on the ECAM control panel.*
  - *A "TOO LOW GEAR" warning is to be expected, if the landing gear is not downlocked at 500 ft RA.*

OAT (°C)	AIRPORT ELEVATION (feet)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
0	76	74	71	68	64	61	58	54
5	76	74	71	68	64	61	56	52
10	76	74	71	68	64	59	54	
15	76	74	71	67	61	57	52	
20	76	74	69	64	59	54		
25	76	71	66	61	56			
30	73	68	64	59	54			
35	69	65	61	57	52			
40	66	62	59	55				
45	63	60	57					
50	60	57						
55	57							

MAXIMUM WEIGHT FOR CIRCLING IN CONF 3 (1000 KG)

STRAIGHT-IN-APPROACH WITH ONE ENGINE INOPERATIVE

For performance reasons, do not extend flaps full until established on a final descent to landing.
If a level off is expected during the final approach, perform the approach and landing in CONF 3.

BOMB ON BOARD

IF POSSIBLE, LAND AND EVACUATE THE AIRCRAFT IMMEDIATELY.

If it is not possible to land and evacuate the aircraft within 30 min, apply the following procedures :

COCKPIT PROCEDURES

BACKGROUND

To avoid the activation of an altitude-sensitive bomb, the cabin altitude should not exceed the value at which the bomb has been discovered.

To reduce the effects of the explosion, the aircraft should fly as long as possible with approximately 1 PSI differential pressure, to help the blast go outwards. 1 PSI differential pressure corresponds to a 2 500 ft difference between the aircraft and the cabin altitude.

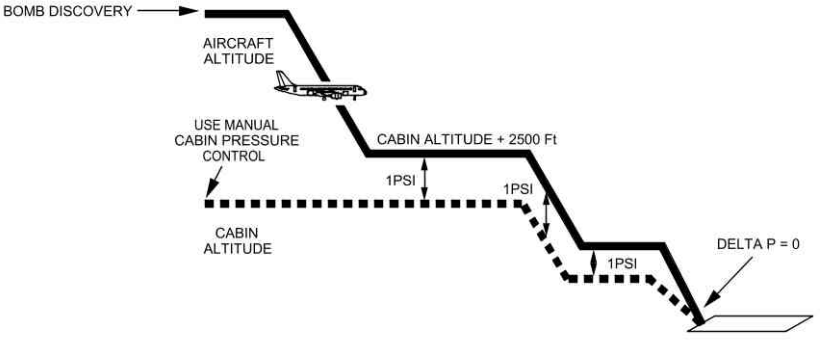
These conditions are achieved by using the manual pressure control.

PROCEDURE

The following procedure assumes that it is initiated during climb or cruise :

- First, maintain the cabin altitude.
- While maintaining the cabin altitude, descend the aircraft to the cabin altitude + 2 500 ft and maintain delta P at 1 PSI .
- During further steps of descent, maintain delta P at 1 PSI .
- For landing, reduce the differential pressure to zero, until the final approach.

If flight conditions are different, the crew should adapt the procedure, bearing in mind the above-mentioned principles (background paragraph).



AIRCRAFT (if climbing).....LEVEL OFF
CABIN PRESS MODE SEL.....MAN
CAB ALT.....MAINTAIN
CABIN CREW.....NOTIFY
ATC/COMPANY OPERATIONS.....NOTIFY
FUEL RESERVES.....DETERMINE

Keep in mind that when flying at cabin altitude + 2 500 ft , the fuel consumption in CONF 1, with landing gear down, will be about 2.1 times that consumed in clean configuration.

NEXT SUITABLE AIRPORT.....DETERMINE
FCU SPEED SELECTION KNOB.....PULL AND TURN

Select the most appropriate speed, taking into account the time to destination, the fuel consumption and the fact that low speed could reduce the consequences of possible structural damage, if the bomb explodes.

DESCENT TO CAB ALT +2 500 FEET or MEA or minimum obstacle clearance altitude.....INITIATE
AVOID SHARP MANEUVERS
CAB ALT.....MAINTAIN

BOMB ON BOARD (Cont'd)

- **When at CAB ALT+ 2 500 ft:**

  1 PSI DELTA P.....MAINTAIN

  GALLEY.....OFF

  - **When the bomb is secured at the LRBL or cannot be moved:**

    EMER EXIT LT.....ON

    COMMERCIAL.....OFF

  FLAPS (fuel permitting)..... AT LEAST CONF 1

  For landing, use normal configuration.

  LANDING GEAR (fuel permitting, except for flight over water).....DOWN

- **For any other steps of descent:**

  1 PSI DELTA P.....MAINTAIN

- **During approach:**

  CABIN PRESS MODE SEL..... AUTO

- **When aircraft on ground and stopped in a remote area (if possible) :**

  - **If evacuation required:**

    EVACUATION.....INITIATE

    Avoid exits, and exiting on the same side as the bomb or near the bomb.

  - **If evacuation not required:**

    CABIN CREW and PASSENGERS (PA).....NOTIFY

CABIN PROCEDURES

If a suspect device is found in the cabin:

WARNING	Do not cut or disconnect any wires and do not open or attempt to gain entry to internal components of a closed or concealed suspect device. Any attempt may result in an explosion. Booby-trapped closed devices have been used on aircraft in the past.

WARNING	Alternate locations must not be used without consulting with an aviation explosives security specialist. Never take a suspect device to the flight deck.

CAUTION	The least risk bomb location for aircraft structure and systems is center of the RH aft cabin door.

EOD PERSONNEL ON BOARD.....CHECK

Announce :˝Is there any EOD personnel on board ?˝. By using the initials, only persons familiar with EOD (Explosive Ordnance Disposal) will be made aware of the problem.

BOMB.....DO NOT OPEN

BOMB.....DO NOT CUT WIRES

BOMB.....SECURE AGAINST SLIPPING

BOMB.....AVOID SHOCKS

Secure in the attitude found and do not lift before having checked for an anti-lift ignition device.

PASSENGERS.....LEAD AWAY FROM BOMB

Move passengers at least 4 seat rows away the bomb location. On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest.

Seat backs and tray tables must be in their full upright position.

Service items may need to be collected in order to secure tray tables.

BOMB ON BOARD (Cont'd)

PORTABLE ELECTRONIC DEVICES..... SWITCH OFF

The cabin crews must command passengers to switch off all portable electronic devices.

BOMB.....CHECK NO ANTI-LIFT DEVICE

To check for an anti-lift switch or lever, slide a string or stiff card (such as the emergency information card) under the bomb, without disturbing the bomb.

If the string or card cannot be slipped under the bomb, it may indicate that an anti-lift switch or lever is present and that the bomb cannot be moved.

If a card is used and can be slid under the bomb, leave it under the bomb and move together with the bomb.

If it is not possible to move the bomb, then it should be surrounded with a single thin sheet of plastic (e.g. trash bag), then with wetted materials, and other blast attenuation materials such as seat cushions and soft carry-on baggage. Move personnel as far away from the bomb location as possible.

EMERGENCY EQUIPMENTS.....REMOVE AND STOW

Emergency equipments (PBE, fire extinguisher, ...) located close to the LRBL must be removed and stowed in alternate location.

GALLEY/IFE POWER.....OFF

All galley and IFE equipments located close to the LRBL must be switched off.

- **If the bomb can be moved:**

RH AFT CABIN DOOR SLIDE.....DISARM

LEAST RISK BOMB LOCATION (LRBL)..... PREPARE

Build up a platform of solid baggage against the door up to about 25 cm (10 in) below the middle of the door.

On top of this, build up at least 25 cm (10 in) of wetted material such as blankets and pillows.

Place a single thin sheet of plastic (e.g. trash bag) on top of the wetted materials. This prevents any possible short circuit.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

BOMB INDICATION LINE..... POSITION

Note: *A bomb location indicator line is a 6 ft to 8 ft (1.8 m to 2.4 m) line (e.g. neckties, headset cord, or belts connected together) preferably of constrating color, that helps the responding bomb squad find the precise location of the suspect device within the LRBL stack once constructed.*

Position the bomb indication line from the location on the platform where you will place the suspect device, EXTENDING outward into the aisle.

BOMB..... MOVE TO LRBL

Carefully carry in the attitude found and place on top of the wetted materials in the same attitude and as close to the door structure as possible.

CAUTION	*Ensure that the suspect device, when placed on the stack against the door, is above the slide pack but not against the door handle, and if possible, avoid placement in the view port.*

BOMB ON BOARD (Cont'd)

LEAST RISK BOMB LOCATION (LRBL).....COMPLETE

Place an additional single thin sheet of plastic over the bomb.

CAUTION	*DO NOT OMIT THE PLASTIC SHEETS, AS THE SUSPECT DEVICE COULD GET WET AND POSSIBLY SHORT CIRCUIT ELECTRONIC COMPONENTS CAUSING INADVERTENT DEVICE ACTIVATION.*

Build up at 25 cm (10 in) of wetted material around the sides and on top of the bomb.

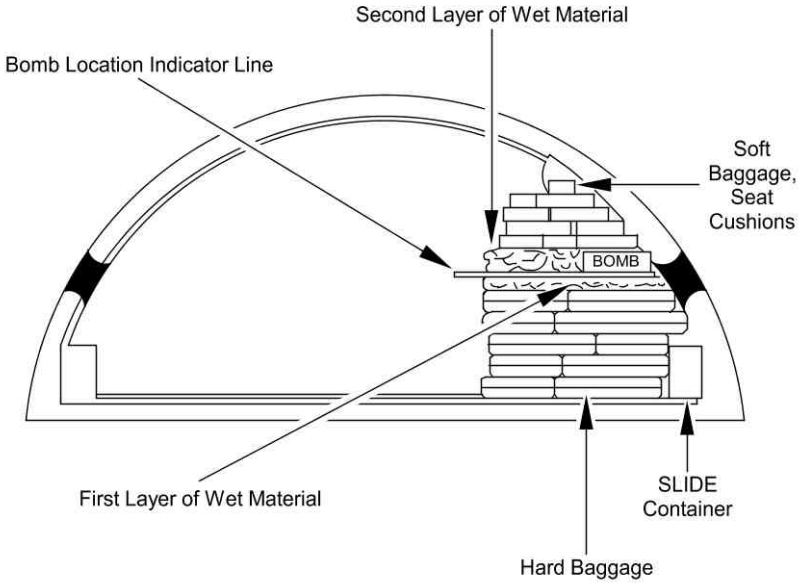
DO NOT PLACE ANYTHING BETWEEN THE BOMB AND THE DOOR, AND MINIMIZE AIRSPACE AROUND THE BOMB.

The idea is to build up a protective surrounding of the bomb so that the explosive force is directed in the only unprotected area into the door structure.

Fill the area around the bomb with seat cushions and other soft materials such as hand luggage (saturated with water on any other nonflammable liquid) up to the cabin ceiling, compressing as much as possible. Secure the LRBL stack in place using belt, ties or other appropriate materials. The more material stacked around the bomb, the less the damage will be.

USE ONLY SOFT MATERIAL. AVOID USING MATERIALS CONTAINING ANY INFLAMMABLE LIQUID AND ANY METAL OBJECTS WHICH COULD BECOME DANGEROUS PROJECTILES.

LRBL STACK



PASSENGERS.....MOVE/ADVISE

Move passengers at least 4 seat rows away from the least risk bomb location (RH aft cabin door). On full flights, it may be necessary to double up passengers to achieve standoff from the suspect device.

Passengers near the bomb should protect their heads with pillows, blankets. All passengers must remain seated with seatbelts on and, if possible, head below the top of the head rest. Seat backs and tray tables must be in their full upright position.

CABIN CREW..... NOTIFY COCKPIT CREW

Cabin crew notify the flight crew that the bomb is secured at the LRBL.

BOMB ON BOARD (Cont'd)

EVACUATION/DISEMBARKATION.....EXECUTE

Evacuate through normal and emergency exits on the opposite side of the ˝bomb˝ location. Do not use the door just opposite the ˝bomb˝.

Use all available airport facilities to disembark without delay.

DITCHING

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining*) procedure, which has been amended to include the ditching procedure when the engines are not running.

PREPARATION

ATC/TRANSPONDER (if available)..... NOTIFY/SELECT A7700
Notify ATC of the nature of the emergency encountered, and state intentions. Select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz.
CABIN and COCKPIT.....PREPARE
Loose equipment secured, survival equipment prepared, belts and shoulder harness locked.
GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SELECT 00
BARO..... SET
Omit the normal approach and landing checklist.
CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

L/G lever..... UP
SLATS and FLAPS.....MAX AVAIL

AT 2 000 FT AGL

CAB PRESS MODE SEL.....CHECK AUTO
BLEED (ENGs and APU).....OFF
CABIN.....NOTIFY FOR DITCHING
DITCHING pushbutton..... ON
Prefer ditching parallel to the swell. If that causes a strong crosswind, ditch into the wind.
In all cases, touch down with a pitch attitude of approximately 11 °. Minimize aircraft vertical speed.

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTERS SW.....OFF

AFTER DITCHING

ATC (VHF 1).....NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENGs and APU)..... DISCH
EVACUATION..... INITIATE
ELT.....CHECK EMITTING
If not,switch ON the transmitter.

FORCED LANDING

1

This procedure applies when engines are running. If engines are not running, *Refer to the QRH ABN 70 ENG DUAL FAILURE (with or without fuel remaining)* procedure, which has been amended to include the forced landing procedure, when the engines are not running.

PREPARATION

ATC /TRANSPONDER (if available)..... NOTIFY/SELECT A7700

Notify ATC of the nature of the emergency encountered, and state intentions.
If not in contact with ATC, select transponder code A7700, or transmit the distress message on: (VHF) 121.5 MHz or (HF) 2 182 kHz or 8 364 kHz .

CABIN and COCKPIT.....PREPARE

- *Loose equipment secured*
- *Survival equipment prepared*
- *Belts and shoulder harness locked.*

GPWS SYS.....OFF
GPWS TERR.....OFF
SIGNS.....ON
EMER EXIT LT.....ON
COMMERCIAL.....OFF
LDG ELEV..... SET
BARO..... SET

Omit normal approach and landing checklist.

CREW MASKS/OXY SUPPLY (below FL 100).....OFF

APPROACH

RAM AIR.....ON
L/G lever.....DOWN
SLATS AND FLAPS.....MAX AVAIL
GND SPLR.....ARM
MAX BRK PR.....1 000 PSI

AT 2 000 FT AGL

CABIN.....NOTIFY FOR LANDING

AT 500 FT AGL

BRACE FOR IMPACT..... ORDER

AT TOUCHDOWN

ENG MASTERS.....OFF
APU MASTER SW..... OFF
BRAKES ON ACCU ONLY

AFTER LANDING

- **When aircraft has stopped:**

PARKING BRK.....ON
ATC (VHF 1)..... NOTIFY
FIRE pushbutton (ENG and APU).....PUSH
AGENTS (ENG and APU).....DISCH

FORCED LANDING (Cont'd)

■ **If Evacuation required:**

EVACUATION.....INITIATE

ELT..... CHECK EMITTING

If not, switch on the transmitter.

■ **If Evacuation not required:**

CABIN CREW and PASSENGERS (PA).....NOTIFY

EMER DESCENT

2

IMMEDIATE ACTION

CREW OXY MASKS.....ON

EMER DESCENT.....ANNOUNCE(PA)

The flight crew should inform the cabin of emergency descent on the PA system.

SIGNS.....ON

EMER DESCENT.....INITIATE

The recommendation is to descend with the AP engaged :

- *Turn the ALT selector knob and pull*
- *Turn the HDG selector knob and pull*
- *Adjust the target SPD/MACH.*

THR LEVERS(if A/THR not engaged).....IDLE

- *If autothrust is engaged, check that THR IDLE is displayed on the FMA.*
- *If not engaged, retard the thrust levers.*

SPD BRK..... FULL

Extension of the speedbrakes will significantly increase Vls.
To avoid AP disconnection and automatic retraction of the speedbrakes, due to possible activation of Angle-of-Attack protection, allow the speed to increase before starting to use the speedbrakes.

WHEN DESCENT ESTABLISHED

EMER DESCENT FL100, or minimum allowable altitude.

SPEED.....MAX/APPROPRIATE

CAUTION	*Descend at the maximum appropriate speed. If structural damage is suspected, use the flight controls with care and reduce speed as appropriate.*

Landing gear may be extended below 25 000 ft. In such a case, speed must be reduced to VLO/VLE.

Note: The recommendation is to descend with the autopilot engaged.
Use of the autopilot is also permitted in EXPEDITE mode ◁⊲ .

ENG MODE SEL.....IGN

ATC.....NOTIFY

Notify ATC of the nature of the emergency, and state intention. If not in contact with ATC, transmit a distress massage on one of the following frequencies: (VHF) 121.5 MHz, or (HF) 2 182 kHz, or 8 364 kHz.

ATC XPDR 7700.....CONSIDER

Squawk 7700 unless otherwise specified by ATC.
To save oxygen, set the oxygen diluter selector to the N position. If the oxygen diluter selector remains at 100 %, the quantity of oxygen may not be sufficient for the entire emergency descent profile.

MAX FL..... 100/MEA

- **IF CAB ALT > 14 000 ft:**

  PAX OXY MASKS..... MAN ON

  This action confirms that the passenger oxygen masks are released.

  Note: Notify the cabin crew when the aircraft reaches a safe flight level, and when cabin oxygen is no more necessary.

OVERWEIGHT LANDING

LDG CONF..... AS REQUIRED

Use the ECAM flap setting, if required for abnormal operations. In all other cases :

- *FULL is preferred for optimized landing performance*
- *If the aircraft weight is above the maximum weight for go-around (given in the table below), use FLAP 3 for landing.*
  In all cases, if landing configuration is different from FLAP FULL, use 1+F for go-around.

Note: At very high weights, VFE CONF1 is close to VLS clean. To select CONF1, deselect A/THR, decelerate to (or slightly below) VLS and select CONF1 when below VFE. When established at CONF1, the crew can re-engage the A/THR and use managed speed again

LDG DIST.....CHECK

PACK 1 and 2.....OFF or supplied by APU

Selecting packs OFF (or supplied from APU) will increase the maximum thrust available from the engines in the event of a go-around.

- **In the final approach stages**

  TARGET SPEED..... VLS

  Reduce the selected speed on the FCU to reach VLS at runway threshold.
  Touch down as smoothly as possible (Maximum V/S at touchdown 360 ft/min).

- **At main landing gear touchdown**

  REVERSE THRUST..... USE MAX AVAILABLE

- **After nosewheel touchdown**

  BRAKES.....APPLY AS NECESSARY

  Maximum braking may be used after nose wheel touchdown. But, if landing distance permits, delay or reduce braking to fully benefit from the available runway length.

- **Landing complete**

  BRAKE FANS ✻ ..... ON

  Be prepared for tire deflation, if temperatures exceed 800 °C.

MAXIMUM WEIGHT FOR GO AROUND IN CONF 3 (1 000 kg)								
OAT °C	AIRPORT ELEVATION (FT)							
	0	2 000	4 000	6 000	8 000	10 000	12 000	14 000
<10	92	88	82	76	70	65	60	55
15	92	88	82	76	70	65	60	55
20	92	88	82	76	70	65	60	55
25	92	87	80	75	69	64	59	
30	92	85	79	73	68			
35	88	82	76	70	65			
40	85	79	73	68				
45	82	75	70					
50	78	72						
55								

STALL RECOVERY

As soon as any stall indication (could be aural warning, buffet...) is recognized, apply the immediate actions:

NOSE DOWN PITCH CONTROL..... APPLY

This will reduce angle of attack

Note: In case of lack of pitch down authority, reducing thrust may be necessary.

BANK..... WINGS LEVEL

- **When out of stall (no longer stall indications) :**

  THRUST.....INCREASE SMOOTHLY AS NEEDED

  Note: In case of one engine inoperative, progressively compensate the thrust asymmetry with rudder.

  SPEEDBRAKES.....CHECK RETRACTED

  FLIGHT PATH..... RECOVER SMOOTHLY

  - **If in clean configuration and below 20 000 ft:**

    FLAP 1.....SELECT

    Note: If a risk of ground contact exists, once clearly out of stall (no longer stall indications), establish smoothly a positive climb gradient.

STALL WARNING AT LIFT-OFF

Spurious stall warning may sound in NORMAL law, if an angle of attack probe is damaged. In this case, apply immediately the following actions:

THRUST.....TOGA

At the same time:

PITCH ATTITUDE.....15 °

BANK.....WINGS LEVEL

Note: When a safe flight path and speed are achieved and maintained, if stall warning continues, consider it as spurious.

TAILSTRIKE

In the event of a tailstrike, apply the following procedure:

LAND ASAP

MAX FL..... 100 or MSA

500 ft/min should be targeted for the climb, to minimize pressure changes, and for passenger and crew comfort. Similarly, the rate of descent must be limited to about 1 000 ft/min , except for the final approach that must be performed normally.
Notify the ATC of the aircraft's rate of climb.

RAM AIR.....ON
PACK 1 and 2..... OFF

VOLCANIC ASH ENCOUNTER

3

- **If the aircraft enters a volcanic ash cloud:**

180 ° TURN..... INITIATE
ATC.....NOTIFY
A/THR..... OFF
THRUST (conditions permitting).....REDUCE
CREW OXYGEN MASKS.....ON/100 %/EMER
CABIN CREW.....NOTIFY
PASSENGER OXYGEN.....AS RQRD
ENG ANTI ICE..... ON
WING ANTI ICE..... ON
ECON FLOW.....OFF

Note: *If CARGO VENTILATION system is installed, it is recommended to switch off the CARGO ISOL VALVES, to prevent a cargo smoke warning being triggered.*

APU..... START
ENGINE PARAMETERS..... MONITOR
AIRSPEED INDICATIONS.....MONITOR

If airspeed is unreliable or lost,Refer to the QRH ABN 34 Unreliable Speed Indication / ADR Check Proc procedure.

Note: *If all engines flame out and speed indications are lost, Refer to QRH ABN 70 DUAL ENGINE FAILURE procedure, to get the required pitch attitude for the optimum relight speed.*
In case of engine failure, switch off the wing anti ice before engine restart.

Note: *If sufficient visibility is not granted for approach due to windshield/window damage, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window on the PF's side (maximum speed 200 kt), after cabin depressurization.*
To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN
MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

WINDSHEAR AHEAD

The "W/S AHEAD" message is displayed on each PFD. The color of the message depends on the severity and location of the windshear.

Note: *When a predictive windshear alert (˝WINDSHEAR AHEAD˝ or "GO AROUND WINDSHEAR AHEAD") is triggered, if the flight crew makes a positive verification that no hazard exists, then the alert may be disregarded, as long as:*
- *There are no other signs of possible windshear conditions, and*
- *The reactive windshear system is operational.*
  Known cases of spurious predictive windshear alerts have been reported at some airports, during either takeoff or landing, due to the specific obstacle environment. However, always rely on any reactive windshear (˝WINDSHEAR˝).

W/S AHEAD RED

■ Takeoff

Associated with an aural synthetic voice "WINDSHEAR AHEAD, WINDSHEAR AHEAD".

- **Before takeoff**

  Delay takeoff, or select the most favorable runway.

- **During the takeoff run**

  Reject takeoff.

  Note: *Predictive windshear alerts are inhibited above 100 kts until 50 ft.*

- **When airborne**

  THR LEVERS.....TOGA

  As usual, the slat/flap configuration can be changed, provided the windshear is not entered.

  SRS ORDERS.....FOLLOW

  This includes the use of full backstick, if required.

  Note:
  1. *If engaged, the autopilot disengages when α is greater than α prot.*
  2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

■ Landing

Associated with an aural synthetic voice "GO AROUND, WINDSHEAR AHEAD".

GO AROUND.....PERFORM

This includes the use of full backstick, if required.

Note:
1. *If engaged, the autopilot disengages when α is greater than α prot.*
2. *If the FD is not available, use a pitch initial attitude up to 17.5 °. If necessary to minimize the loss of height, increase this pitch attitude.*

W/S AHEAD AMBER

Apply precautionary measures, as indicated below:

■ Before TAKEOFF

Delay takeoff until conditions improve.

Evaluate takeoff conditions :

- Using observations and experience.
- Checking weather conditions.

Select the most favorable runway (considering location of the likely windshear).

WINDSHEAR AHEAD (Cont'd)

Use the weather radar or the predictive windshear system before commencing takeoff to ensure that the flight path clears any potential problem areas.

Select TOGA thrust.

Monitor closely airspeed and airspeed trend during the takeoff run for early signs of windshear.

■ **During Approach**

Delay landing or divert to another airport until conditions are more favorable.

Evaluate condition for a safe landing by :

- Using observations and experience.
- Checking weather conditions.

Use the weather radar.

Select the most favorable runway, considering also which has the most appropriate approach aid.

Select FLAPS 3.

Use managed speed in the approach phase.

Check both FDs engaged in ILS, FPA or V/S.

Engage the autopilot, for a more accurate approach and earlier recognition of deviation from the beam, when ILS is available.

Note: - *When it is using the GS mini-function, associated with managed speed, the system will carry extra speed in strong wind conditions.*
- *In case of strong or gusty crosswind greater than 20 kt, Refer to FPE-IFL-VAP VAPP Determination without Failure.*

WINDSHEAR

A red flag “WINDSHEAR” is displayed on each PFD associated with an aural synthetic voice “WINDSHEAR” repeated three times.
If windshear is detected by pilot observation, apply the following recovery technique:

■ **At takeoff**

■ **If before V1**

The takeoff should be rejected only if significant airspeed variations occur below indicated V1 and the pilot decides that there is sufficient runway remaining to stop the airplane.

■ **If after V1**

THR LEVERS.....TOGA
REACHING VR.....ROTATE
SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*
2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

WINDSHEAR (Cont'd)

■ **Airborne, initial climb or landing**

THR LEVERS AT TOGA.....SET OR CONFIRM

AP (if engaged).....KEEP

SRS ORDERS.....FOLLOW

This includes the use of full backstick, if demanded.

Note: *1. If engaged, the autopilot disengages when α is greater than α prot.*

2. If the FD bars are not available, use an initial pitch attitude up to 17.5 ° with full backstick, if necessary. If needed, to minimize the loss of height, increase this pitch attitude.

DO NOT CHANGE CONFIGURATION (SLATS/FLAPS, GEAR) UNTIL OUT OF SHEAR.

CLOSELY MONITOR FLIGHT PATH AND SPEED.

RECOVER SMOOTHLY TO NORMAL CLIMB OUT OF SHEAR.

WINDSHIELD/WINDOW ARCING

Affected WINDOW/WINDSHIELD ANTI ICE C/B.....PULL

Pull the circuit breaker of the affected window/windshield heating system, in case of :

- *Electrical arcing of the cockpit windshield/window, or*
- *Burning smell or smoke identified as coming from the bottom right corner of CAPT windshield or bottom left corner of the F/O windshield.*

On the rear C/B panel :

- *ANTI ICE L WSHLD C/B AF10 (123VU)*
- *ANTI ICE R WSHLD C/B AF03 (123VU)*
- *ANTI ICE/WINDOWS L C/B X14 (122VU)*
- *ANTI ICE/WINDOWS R C/B W14 (122VU)*

WINDSHIELD/WINDOW CRACKED

4

DIAGNOSIS OF INNER PLY.....PERFORM

Touch the cracks with a pen (or carefully with fingernail) to determine if there is a crack on the cockpit side.

■ **If no crack on cockpit side:**

No limitation

The inner ply is not affected. Therefore, the window/windshield is still able to sustain the maximum differential pressure at the current flight level.

■ **If cracks on cockpit side:**

MAX FL.....230/MEA

The inner ply is affected. The flight crew is not able to easily determine if other plies are affected. Descend to FL 230/MEA and reduce differential pressure to 5 PSI .

Note: The maximum flight level is restricted to FL 230/MEA to obtain ΔP 5 PSI , without resulting in an excessive cabin altitude and an EXCESS CAB ALT warning.

The following procedure enables maintaining ΔP 5 PSI in manual cabin pressure mode.

CAB PRESS MODE SEL.....MAN

MAN V/S CTL.....AS RQRD

Disregard the CAB ALT TARGET table displayed on the ECAM and set the cabin altitude according to the table below:

ΔP = 5 PSI	FL	100	150	200	230
	CABIN ALTITUDE	0	3 000	6 000	8 000

● **When starting the descent for approach:**

CAB PRESS MODE SEL.....AUTO

Note: If all front facing windows are affected and if sufficient visibility is not granted for approach, consider AUTOLAND. If AUTOLAND is not available, consider opening the sliding window (maximum speed 200 kt) on the PF's side, after cabin depressurization. To manually depressurize the cabin:

CAB PRESS MODE SEL..... MAN

MAN V/S CTL.....FULL UP

Due to the increased noise level, pay particular attention to visual warnings.

ECAM ADVISORY CONDITIONS

SYSTEM	CONDITIONS	RECOMMENDED ACTION
CAB PRESS	CAB VERTICAL SPEED V/S > 1 800 ft/min	CPC changeover is recommended: MODE SEL (MAN) Wait 10 s, then: MODE SEL (AUTO)
	CAB ALTITUDE altitude ≥ 8 800 ft	MODE SEL (MAN) Manual pressure control
	CAB DIFF PRESS ΔP ≥ 1.5 PSI in phase 7	LDG ELEV (ADJUST) If unsuccessful: MODE SEL (MAN) Manual pressure control
ELEC	IDG OIL TEMP ≥ 147 °C	Reduce IDG load, if possible (GALLEY or GEN OFF). If required, restore when the temperature has dropped. Restrict generator use to a short time, if the temperature rises again excessively.
FUEL	Difference between wing fuel quantities greater than 1 500 kg (3 307 lb)	FUEL MANAGEMENT (CHECK) If a fuel leak is suspected, *Refer to FUEL LEAK procedure.*
	Fuel temp greater than 45 °C in wing tank	GALLEY (OFF)
	Fuel temp lower than -40 °C in wing tank	Consider descending to a lower altitude, and/or increasing Mach to increase TAT.
APU	EGT > EGT MAX -33 °C (inhibited during APU start)	
	OIL QTY (message LOW OIL LEVEL pulsing)	If there is no oil leak, then the remaining oil quantity allows normal APU operation for about 10 h.
ENG	OIL PRESS P < 80 PSI	- If oil pressure is between 80 PSI and 60 PSI continue normal engine operation. - If oil pressure is below 60 PSI (red indication), without the ENG OIL LO PR warning, continue normal engine operation (it can be assumed that the oil pressure transducer is faulty). In both cases, monitor other engine parameters, especially oil temperature and oil quantity.
	OIL PRESS P > 390 PSI	Closely monitor other engine parameters for symptoms of engine malfunction. If a high oil pressure is not accompanied by other abnormal indications, operate the engine normally for the remainder of the flight. Record high oil pressure, and corresponding N2 readings, for maintenance action.
	OIL TEMP T > 155 °C	An oil temperature increase during normal steady-state operations indicates a system malfunction, and should be closely monitored for other symptoms of engine malfunction. *Note: If the OIL TEMP increase follows thrust reduction, increasing thrust may reduce oil temperature.* *In addition, an oil temperature increase could be related to the IDG oil cooling system. To reduce oil temperature increases before limits are reached, the following is recommended:* 1. *Low Speed- Increase engine speed to increase fuel flow, and thereby cool IDG oil.* 2. *High Speed- Reduce generator load, or turn off generator. If oil temperature continues to rise, mechanically disconnect IDG.*
	OIL QTY < 5 qt	If oil quantity is low at a high power setting, expect level increase after power reduction.
	NAC TEMP ≥ 320 °C	Monitor engine parameters and crosscheck with other engine.
	VIBRATION N1 ≥ 5 units N2 ≥ 5 units	Refer to HIGH ENGINE VIBRATION procedure (*Refer to ABN-70 HIGH ENGINE VIBRATION*).

TRIPPED C/B RE-ENGAGEMENT

In flight, do not reengage a circuit breaker (C/B) that has tripped by itself, unless the Captain judges it necessary to do so for the safe continuation of the flight. This procedure should be adopted only as a last resort, and only one reengagement should be attempted.

On ground, do not reengage the C/B of the fuel pump(s) of any tank. For all other C/Bs, if the flight crew coordinates the action with maintenance, the flight crew may reengage a tripped C/B, provided that the cause of the tripped C/B is identified.

COMPUTER RESET

When a digital computer behaves abnormally, as a result of an electrical transient, for example, the Operator can stop the abnormal behavior by briefly interrupting the power supply to its processor.
The flight crew can reset most of the computers in this aircraft with a normal cockpit control (selector or pushbutton). However, for some systems, the only way to cut off electrical power is to pull the associated circuit breaker.

To perform a computer reset:
- Select the related normal cockpit control OFF, or pull the corresponding circuit breaker.
- Wait 3 s if a normal cockpit control is used, or 5 s if a circuit breaker is used (unless a different time is indicated)
- Select the related normal cockpit control ON, or push the corresponding circuit breaker
- Wait 3 s for the end of the reset.

WARNING	Do not reset more than one computer at the same time, unless instructed to do so.

Note: *In flight, before taking any action on the cockpit C/Bs, both the PF and PNF must :*

- *Consider and fully understand the consequences of taking action*
- *Crosscheck and ensure that the C/B label corresponds to the affected system.*

The computers most prone to reset are listed in the table below, along with the associated reset procedure. Specific reset procedures included in OEB or TDUs are not referenced in this table and, when issued, supersede this table.

- On ground, almost all computers can be reset and are not limited to the ones indicated in the table.

  The following computers are not allowed to be reset in specific circumstances:
  - ECU (Engine Control Unit on CFM engines), or EEC (Electronic Engine Control on IAE engines), and EIU (Engine Interface Unit) while the engine is running.
  - BSCU (Brake Steering Control Unit), if the aircraft is not stopped.
- In flight, as a general rule, the crew must restrict computer resets to those listed in the table, or to those in applicable TDUs or OEBs. Before taking any action on other computers, the flight crew must consider and fully understand the consequences.

CAUTION	Do not pull the following circuit breakers: - SFCC (could lead to SLATS/FLAPS locked). - ECU or EEC, EIU.

COMPUTER RESET TABLE

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
21	VENT AVNCS SYS FAULT	AEVC	**On ground only:** - Pull C/B Y 17 on 122VU - Wait 1 s before pushing the C/B.
22	AUTO FLT FCU 1(2) FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, or M21 on 121VU for FCU2. - Push it after 5 s. - If FCU1(2) FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU1(2) FAULT remains, pull both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful)
22	AUTO FLT FCU 1+2 FAULT	FCU	**In flight:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s. - CHECK the displayed targets and the barometer reference, and correct them if necessary. **On ground:** - Pull the C/B B05 on 49VU for FCU1, and then M21 on 121VU for FCU2. - Push them after 5 s - If FCU 1+2 FAULT disappears, CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) - If FCU 1+2 FAULT remains, pull again both C/B B05 on 49VU and M21 on 121VU - Push them after 7 min, with a delay of less than 5 s between side 1 and 2 - Wait for at least 30 s for FCU1 and FCU2 safety tests completion - CHECK the displayed targets and barometer reference, and correct them if necessary (RESET successful) FCU targets are synchronized on current aircraft values, and displayed as selected targets. - RE-ENTER the barometer altimeter setting value, if necessary.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
22	WINDSHEAR DET FAULT or REAC W/S DET FAULT ◁	FAC 1+2	**On ground only:** The Flight Crew could cancel these alerts by resetting both FACs, one after the other - Pull the C/Bs B03 and B04 on 49VU and push them after 5 s - Pull the C/Bs M18 and M19 on 121VU and push them after 5 s
	One MCDU locked, or blank	MCDU	**On ground, or in fligth:** - Pull the CB for the locked or blanck MCDU and push it back after 10 s. The circuit breakers for the MCDU's are: • AUTO FLT/MCDU 1 B1 ON 49 VU (Overhead Panel) • AUTO FLT/MCDU 2 N20 ON 121 VU (Right Rear Maintenance Panel) • AUTO FLT/MCDU 3 N21 ON 121 VU (Right Rear Maintenance Panel) ◁
	Both MCDU locked, or blank FMGC malfunction	FMGC FMGC	**On ground:** - Apply external power or APU generator power - Wait 2 min before resetting the FMGC circuit breakers - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC. **In flight:** - FD 1(or 2) (OFF) - Pull the CB of the affected FMGC and reset it after 5 s. The circuit breakers for the FMGC's are: • AUTO FLT/FMGC 1 B2 ON 49 VU (Overhead Panel) • AUTO FLT/FMGC 2 M17 ON 121 VU (Right Rear Maintenance Panel) **CAUTION** Always wait 1 min after the "PLEASE WAIT" message disappears from the MCDU, before engaging or reengaging the FDs and the AP of the reset FMGC.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
23	COM CIDS 1+2 FAULT	CIDS	**On ground, or in flight:** - Pull the C/Bs in the following order: G01 on 49VU, M06 on 121VU. G02 on 49VU, M07 on 121VU. - Wait 10 s, then - Push the C/B in the following order: M06, M07, G01, G02. - After CIDS reset, wait approximately 4 min, before recovering normal operation.
	Uncommanded EVAC horn activation	CIDS	**On ground, or in flight:** Press the EVAC HORN SHUT OFF pb. Set the EVAC CAPT & PURS CAPT sw to the CAPT only position. Wait for 3 s. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR2 in the following order: G02 on 49VU, M07 on 121VU. • IF UNSUCCESSFUL: - Pull the C/Bs for DIR1 in the following order: G01 on 49VU, M06 on 121VU. - Wait for 1 min, then: - Push the C/Bs for DIR2 in the following order: M07, G02 - After CIDS reset, wait approximately 4 min, before recovering normal operation.
23	Frozen RMP	RMP	**On ground, or in flight:** The flight crew must reset all the RMPs one after the other via the RMP control panel: - Set RMP ON/OFF sw to OFF position, - Wait 5 s, - Set RMP ON/OFF sw to ON position.
	FAP freezing	FAP or Tape reproducer PRAM	**On ground, or in flight:** - Pull C/B M14 (or Q14 ◁✻) of the FAP` in the 121VU. - Wait 10 s before pushing the C/B. • IF UNSUCCESSFUL: - Pull the tape reproducer/PRAM C/B F07 on 2000VU (cabin) - Wait 10 s before pushing the C/B.
26	SMOKE DET FAULT	SDCU	**On ground only:** - Pull C/B C06 on 49VU, and C/B T18 on 122VU. - Wait 60 s before pushing both C/Bs.

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
5	F/CTL ELAC 1(2) FAULT (one or both computer failed)	ELAC	**On ground, or in flight** - Set ELAC 1(2) pb to OFF - Wait 3 s, - Set ELAC 1(2) pb to ON **WARNING**: Do not reset ELAC, if uncommanded maneuvers occurred during flight. Do not reset more than one computer at a time. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
27	ELAC or SEC malfunction	ELAC or SEC	ELAC or SEC may be reset. **WARNING**: Do not reset more than one computer at a time. - It is possible to reset the flight control computers in flight, even if not requested by the ECAM, provided only one reset is performed at a time: For the ELAC only, in case of uncommanded maneuvers during the flight, the reset is not recommended. **Note:** - *When an* ELAC *reset is performed on ground, the crew must check the pitch trim position.* - *If a reset is performed on ground, the flight crew must then perform a flight controls check.*
6 27	F/CTL SPLR FAULT triggered on ground after the flight control check.	SEC	**On ground** - All the three SEC may be reset - A flight control check must be performed after the reset - If the ECAM triggers again the F/CTL SPLR FAULT, maintenance action is due. **WARNING**: Do not reset more than one computer at a time.
28	Loss of fuel quantity indication	FQIC	**On ground, or in flight:** - Pull the C/B of the affected channel: • Channel 1 (A13 on 49VU) • Channel 2 (M27 on 121VU) - Wait 5 s, before pushing the C/B. *Note:* *The fuel quantity indication will be re-established within 1 min.*

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
31	FWS FWC 1(2) FAULT	FWC	**On ground:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2.(Q7 on 121VU) Wait 50 s after pushing the C/Bs. **In flight:** Pull, then push, the C/B of the affected FWC: - FWC 1 (F01 on 49VU) - FWC 2 (Q7 on 121VU)

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset

32	BRAKES SYS 1(2) FAULT
	or
	BRAKES BSCU CH 1(2) FAULT
		BSCU	**On ground:**
			- STOP aircraft
			- Set PARK BRK handle to ON
			- Confirm that towing bar is disconnected
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- **If unsuccessful**:
			  - Pull C/Bs M33 and M34 on 121VU for BSCU channel 1
			  - Pull C/Bs M36 and M35 on 121VU for BSCU channel 2
			  - Push C/Bs
			After a successful reset, continue the flight
			Note: *After any BSCU reset :*
			1. Check brake efficiency
			2. Record BSCU reset in the logbook
			In Flight:
			Before landing gear extension:
			- Set A/SKID & N/W STRG sw to OFF
			- Set A/SKID & N/W STRG sw to ON
			- If required, rearm the autobrake
			Note: *After any BSCU reset :*
			- Record BSCU reset in the logbook

	WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT	BSCU	**On ground only:** - STOP aircraft - Set PARK BRK handle to ON - Confirm that towing bar is disconnected - Set A/SKID & N/W STRG sw to OFF - Set A/SKID & N/W STRG sw to ON If successful go back to the gate for troubleshooting with a maximum taxi speed at 10 kt. *Note:* *If during taxi, when the aircraft is moving, WHEEL N.W STEER FAULT or WHEEL N/W STRG FAULT ECAM alert appears along with the NW STRG DISC memo, the flight crew may attempt to perform only one BSCU reset. If the mentioned alert and memo disappear after this BSCU reset, continue the flight.* *Note:* *After any BSCU reset:* *1. Check brake efficiency* *2. Record the BSCU reset in the logbook*

	L/G LGCIU 1(2) FAULT	LGCIU 1(2)	**On ground only:**
			The flight crew must depressurize the green hydraulic system before resetting the LGCIU.
			- ENG 1 PUMP: OFF
			- PTU: OFF
			When there is no green hydraulic pressure:
			- To reset LGCIU 1:
			  • Pull C/B Q34 on 121VU, then C09 on 49VU
			  • Wait for 15 s , then push the C/Bs
			- To reset LGCIU 2:
			  • Pull C/B Q35 on 121VU
			  • Wait for 15 s , then push the C/B

Continued from the previous page

ATA	System malfunction or ECAM Warning/Caution	Affected System	Reset
34	NAV TCAS FAULT	TCAS	**On ground only:** - Pull C/B K10 on 121VU. - Wait 5 s, then push the C/B.
38	Failure messages on the CIDS FAP in the cabin	Vacuum System Controller	**On ground, or in flight:** - Pull C/B 35 MG on 2001VU, aft cabin, - Wait 30 s, then push the C/B 35 MG.
46	ATSU Malfunction	ATSU	An ATSU reset should be attempted, if: key selection has no effect on any of the MCDU ATSU DATALINK submenus. **On ground, or in flight:** - Pull the C/Bs in the following order: L16, L15 on 121VU - Wait 5 s, then: - Push the C/Bs in the following order: L15, L16.

Intentionally left blank

COMPANY PROCEDURES

Intentionally left blank

CP-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

CP-LVO Low Visibility Operations
LOW VISIBILITY OPERATIONS (LVO)..... 1/2

CP-LVP Low Visibility Procedures
LVO DEPARTURE..... 1/2
LVO APPROACH & AUTOLAND..... 1/2

CP-RNAV Area Navigation
RNAV (GNSS) / RNAV (RNP) APPROACH..... 1/2

CP-AWO Cold Weather / De-Icing
COLD WEATHER / DE-ICING - FLIGHT PREPARATION..... 1/2
COLD WEATHER / DE-ICING - COCKPIT PREPARATION..... 1/2
DE-ICING AND ANTI-ICING PROCEDURES..... 2/2

CP-AWP All Weather Procedures
CONTAMINATED RUNWAY TAKEOFF OPERATIONS..... 1/2

CP-AWA All Weather Altimetry
LOW TEMPERATURE ALTIMETRY..... 1/2

CP-MISC Miscellaneous
WIND COMPONENT CHART - A321..... 1/2

CP-FAIL ACARS LANDING Fail Codes
ACARS LANDING FAIL CODE - A321..... 1/2

Intentionally left blank

Localization Title	Page	ID	Reason
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	1	**18 Sep 2012 : Modification of content of the element 71503145.9001001**
			21 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVO LOW VISIBILITY OPERATIONS (LVO)	1/2	2	**07 Sep 2012 : Modification of content of the element 71503145.9001001**
			17 Sep 2012 : Modification of content of the element 71503145.9001001
CP-LVP LVO DEPARTURE	1/2	1	**14 Sep 2012 : Modification of content of the element 71503146.9001001**
CP-LVP LVO APPROACH & AUTOLAND	1/2	2	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-LVP LVO APPROACH & AUTOLAND	1/2	3	**04 Oct 2012 : Modification of content of the element 71503147.9001002**
CP-AWO COLD WEATHER / DE-ICING - FLIGHT PREPARATION	1/2	1	**18 Sep 2012 : Modification of content of the element 71503149.9001001**
CP-AWP CONTAMINATED RUNWAY TAKEOFF OPERATIONS	1/2	1	**18 Sep 2012 : Modification of content of the element 71503152.9001001**
CP-FAIL ACARS LANDING FAIL CODE - A321	1/2	1	**20 Sep 2012 : Modification of content of the element 20803157.9001001**

Intentionally left blank

LOW VISIBILITY OPERATIONS (LVO)

SILENT REVIEW-SELF BRIEFING

● TAXI/LINE UP

Maximum speed 10 kts

Complete the Before T/O checklist before taxi or after reaching the holding point.

Use ILS to confirm the correct departure runway.

● DESCENT PREPARATION

Check the ECAM STATUS page for any degraded approach capability:

Refer any system fault to the table of equipment required in QRH OPS.04.

Subject to aircraft status, plan for a CAT 3 DUAL approach. Observe the following minimum requirements:

	Autoland	Auto-rollout	A/THR	Auto-callout
Cat 3B	Required	Required	Required	Required
Cat 3A	Required	Preferred	Required	Required
Cat 2	Preferred(1)	Preferred	Preferred	Preferred

(1) If a manual landing is required, autopilot shall be disconnected by 80ft RA.

A/C Capability	Approach Capability	Minima on PERF APPR page
CAT 3 DUAL	CAT 3B	Insert RA or NO from Port Page
CAT 3 SINGLE	CAT 3A	Insert RA from Port Page
CAT 2	CAT 2	Insert RA from Port Page

As part of the normal arrival briefing:

- Confirm LVP (Low Visibility Procedures) in force (clearance to fly a Cat 2/3 approach satisfies this requirement).
- Review LVO and autoland requirements on the Port Page.
- For autoland, confirm that the wind is within the autoland limits.
- State the category of approach to be flown.
- Review reversion capability.
- Review task sharing, standard calls and the actions in the event of a missed approach.

● APPROACH: REVERSION

For any system fault that does not incur a landing capability downgrade on ECAM STATUS or FMA, the fault shall be checked against the table of equipment required in QRH OPS.04.

If a reversion to a degraded approach capability occurs and the RVR is within limits for the approach to be continued with the new capability:

- Above 1 000 ft RA, complete ECAM actions, amend the DH in the PERF APPR page and continue the approach.
- Below 1 000 ft RA, a go-around is recommended.

The alert height (AH) is 100 ft RA. It is relevant when CAT 3 DUAL is displayed on the FMA. Below the alert height, aircraft capability downgrades are not annunciated on the FMA.

If a reversion to a degraded approach capability occurs and the RVR is below the minima for the new approach capability, the approach may not commence, or continue if already below 1 000 ft RA.

Unless there are sufficient visual references, a go-around is mandatory if:

- LAND green is not annunciated by 350 ft RA.
- The AUTOLAND warning light illuminates.
- During an autoland, FLARE is not annunciated by 30 ft RA. In this case, the PM shall call "NO FLARE" and the PF shall disconnect the AP and land manually if sufficient visual reference.

Intentionally left blank

LVO DEPARTURE

1

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Takeoff Alternate
  - PF to taxi / max speed 10 kt / Strobes ON
  - PM to navigate using taxi chart & a/c heading
  - Do not cross CAT II/III holding points without clearance
  - Before T/O Checklist when a/c is stationary
  - Consider TOGA
  - ALL RVR's at/above Takeoff minima (refer Port Page)
  - Use localiser to confirm correct runway centerline

LVO APPROACH & AUTOLAND

2

3

- **LHS Captain is PF. During the C-TWO + briefing review:**
  - Confirm LVP in force
  - Review Port Page LVO & Autoland requirements
  - Check STATUS for any degraded approach capability
  - State category of approach and reversion capability
  - Insert appropriate DH in MCDU / Review CAT I minima
  - Check surface wind within limits:
    - AUTOLAND (HWC30 / TWC10 / XWC20)
    - MANUAL LAND - CAT II (HWC40 / TWC10 / XWC25)
    - OEI ROLLOUT (IDLE REV ONLY XWC15)
  - CAT 2/3A RVR: TDZ & MID controlling / RO advisory
  - CAT 3B RVR: TDZ, MID & RO controlling. Part A Chapter 8.4.3 refers.
  - Review Task sharing & Standard Calls
  - PM to call "FLARE/NO FLARE" (30 ft) & "ROLLOUT/NO ROLLOUT"
  - LVP taxiway to vacate runway / LVP taxi route

Below 1000 ft AAL and above 100 ft AAL (CAT 3 DUAL) or above DH (CAT 2 or CAT 3 SINGLE) and in IMC, Go-Around for:

- α Floor
- Autopilot OFF
- Downgrade below required approach capability
- Amber Caution
- Autoland warning light
- Engine Failure
- No "LAND" green by 350 ft RA
- No "FLARE" by 30 ft
- No "ROLLOUT" after an Autoland

Below 100 ft AAL (CAT 3 DUAL) and in IMC, Go-Around for:

- Autoland warning light
- No "ROLLOUT" annunciated after an Autoland
- No "FLARE" by 30 ft

Intentionally left blank

RNAV (GNSS) / RNAV (RNP) APPROACH

APPROACH PREPARATION

Database waypoints from the final approach course fix to the runway threshold or MAP shall not be modified.

Refer to OEB Index and the AML to determine if restrictions on the use of FINAL APP mode apply.

Prior to the approach, check:
- Two operative navigation systems (2 x FMGS and 2 x GPS).
- Both GPSs in NAV on the GPS MONITOR page.
- GPS PRIMARY on both MCDUs.

The aircraft shall be laterally stable by the FAF.

APPROACH GUIDANCE

FINAL APP (recommended) and NAV-FPA modes are available:
- FINAL APP mode shall be used for approach to a decision altitude (DA).
- NAV-FPA may be used for approach to a minimum descent altitude (MDA), and shall be used for approach when OAT is below the published Baro-NAV minimum temperature, or if low temperature altitude corrections are applied for the approach. Part A chapter 8 refers.

AFTER COMMENCING APPROACH: NAVIGATION ALERTS

GPS FAULT 1(2) ECAM caution:
- Continue the approach.

GPS PRIMARY LOST displayed:
- On one ND, continue using the AP/FD associated with the other ND/FMGS.
- On Both NDs:
  - Standalone approach: discontinue the approach.
  - Overlay approach: continue the approach using navaid raw data. If necessary, revert to NAV-FPA or TRK-FPA.

FM/GPS POS DISAGREE ECAM caution:
- Standalone approach: discontinue the approach.
- Overlay approach: revert to TRK-FPA and continue the approach using navaid raw data.

FMS1/FMS2 POS DIFF message on the MCDU scratchpad:
- Standalone approach: discontinue the approach.
- Overlay approach: continue the approach using navaid raw data and the AP/FD associated with the accurate (non-affected) FMGS. If necessary, revert to TRK-FPA.

Intentionally left blank

COLD WEATHER / DE-ICING - FLIGHT PREPARATION

1

REVIEW

- ATIS - W/V (Crosswind), Precipitation, Visibility (snowfall intensity table - Part A Chapter 8). If freezing fog, note previous taxi-in time.
- The available or desireable type or De-icing/Anti-icing fluid(s) and respective mixture ratio.
- The location and method of de-icing, the supplier and KA priority.
- Runway surface and braking conditions (Friction Index).
- Length of expected or occuring delays.
- Aircraft PADDs - if APU inop, GPU required at Remote Bay de-icing (with engines shutdown).

DETERMINE

- Holdover Time (HOT) using appropriate table from Part A Chapter 8 and current or expected weather conditions.
- Max RTOW and Max Crosswind - in current and expected weather conditions - Refer to LIM-12 Maximum Crosswind on Contaminated Runways.
- Fuel Required - with possible lengthy taxi delays. No fuel tankering required.
- Max ZFW and, if limiting, advise Load Control.
- Takeoff alternate (as necessary) within 340 nm.

CONFIRM

- Slot time (if any).
- Boarding time (allowing for possible LMCs).
- If de-icing at the gate - the scheduled sequence/time.
- If possible - ensure vacant cabin seats available for the Pre-takeoff Contamination Inspection (PCI).

COLD WEATHER / DE-ICING - COCKPIT PREPARATION

SYSTEMS IN COLD WEATHER (REFER TO PRO-SUP-91-30)

IRS..... Align early (15 mins)
Pack 1 (then 2)..... ON

Note: *(If the pack outlet temperature indication on ECAM is crossed amber, the associated pack controller has to be reset to ensure pack overheat protection and to recover pack outlet temperature indication.)*

Probe/Window Heat.....ON, prior to external inspection

PERFORMANCE

- Takeoff: Engine and/or Wing Anti-ice, Optimal Flap setting.
- Cold Weather Altimetry.
- Landing Distance: for possible immediate return.

BRIEFING

- Tyre flat spots may cause nose wheel vibration on takeoff.
- Taxi-route (LVP) and speeds.
- Review fan ice shedding procedures. Refer to PRO-NOR-SOP-09.
- Review Ground De-icing procedures. Refer to PRO-SUP-91-30.

PA

- Include the operational requirements to de-ice to inform and re-assure passengers.

DE-ICING AND ANTI-ICING PROCEDURES

De-Icing and Anti-Icing Procedures Part A 8.2.3 & PRO-SUP-91-30

Remote De-Icing Bay (engines shutdown)	De-Icing at terminal gate
Pushback • Consider starting the engines after pushback if ramp is contaminated.	
After Start • Engine oil pressure may be unusually high after start until oil temperature stabilizes. • Keep APU ON. • Do not move flaps or trims.	
At Remote Bay • Taxi-Lights - OFF • Engines - Shutdown • Shutdown Checklist - Complete	

Procedure for Ground De-Icing / Anti-Icing (Refer to PRO-SUP-91-30) ..... apply

- Note Start Time of Final Fluid application.
- Add HOT.
- Calculate expiry of HOT.

If only one De-Icing truck used:
Note first wing to receive treatment, as fluid is likely to fail on this wing first.

Re-evaluate ATIS, HOT, FOB, C-TWO+ Briefing • Before start checklist. • Init B: re-enter ZFWCG/ZFW. • Check T.O PERF. • Flap Retraction Brief.	

Start Checklist ..... Complete

Note: If ZFWCG/ZFW is not entered prior to start, ECAM message FUEL NO WEIGHT/CG DATA will require the entry of **Gross Weight** GW/CG on FUEL PRED page.	**Pushback** • Consider starting the engines after pushback if ramp is contaminated. • Engine Oil Pressure may be unusually high after start until oil temperature stabilizes.

Probe/Window Heat ..... AUTO

Further Considerations
If taxi in slush/standing water - leave flaps up until holding point
LVP Procedures
Wing Anti-Icing Operations: Select and Leave ON - Do not interrupt the 30 SEC test sequence

Fan Ice Shedding

Fan Ice Shedding: OAT <3 °C → 50 % N1 every 15 min and just prior to takeoff

Note: *When performing the static run-up, the 61-74 % N1 range should be avoided.*

A Pre Takeoff Contamination Inspection / Check, as appropriate, shall be carried out if the lower time in the HOT cell has been exceeded. Part A Chapter 8.2.3 refers.

BEFORE TAKEOFF Checklist

CONTAMINATED RUNWAY TAKEOFF OPERATIONS

Use TOGA thrust. FLEX thrust may ONLY be used if the equivalent condition is WET.

Do NOT takeoff from an ICY runway, or contaminated runway if:

- the friction coefficient is at or less than 0.25 ICAO, or 25 USA. Part A Chapter 8.2.3 refers.
- the contamination is greater than:
  - 12.7 mm(1/2 in) of SLUSH,
  - 25.4 mm(1 in) of WET SNOW,
  - 101.6 mm(4 in) of DRY SNOW.

ACARS RTOW sets an OAT RANGE for each condition to provide a performance buffer and protect against entry errors. Entered temperatures outside of the acceptable range will NOT produce any RTOW data.

Equivalency: For types or depths of contaminants not listed above, use the following guidelines:

CONTAMINANT	DEPTH OF CONTAMINANT	EQUIVALENT TO	ACARS CODE	OAT RANGE*
WATER	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm WATER	WT6	0 to 51 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm WATER	WT12	
SLUSH	≤ 3 mm	WET	WET (W)	-5 to 51 °C
	>3 mm and ≤ 6.3 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>6.3 mm and ≤ 12.7 mm	12.7 mm SLUSH	SH12	
WET SNOW	≤ 4 mm	WET	WET (W)	-5 to 51 °C
	>4 mm and ≤ 12.7 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>12.7 mm and ≤ 25.4 mm	12.7 mm SLUSH	SH12	
DRY SNOW	≤ 15 mm	WET	WET (W)	-5 to 51 °C
	>15 mm and ≤ 50.8 mm	6.3 mm SLUSH	SH6	-5 to 15 °C
	>50.8 mm and ≤ 101.6 mm (MAX)	12.7 mm SLUSH	SH12	-5 to 15 °C
COMPACTED SNOW	--	COMPACTED SNOW	CSNW	-54 to 5 °C

**Where actual OAT is below the OAT Range, use the lower limit of the OAT Range. If actual OAT is above the upper limit of the OAT Range, takeoff is NOT permitted. Re-evaluate the existing contaminant condition.*

● MAXIMUM CROSSWIND (FCOM/LIM-12)

Runway Condition	Max Crosswind for takeoff (Gust included)
Damp Wet	38 kt
≤ 3 mm Slush/Dry Snow/Wet Snow Frost Compacted Snow (OAT ≤ -15 °C)	29 kt
Slippery when wet Compacted Snow (OAT ≤ -15 °C) >3 mm depth of Dry Snow (max 130 mm) >3 mm depth of Wet Snow (max 30 mm)	25 kt
>3 mm depth of Water (max 12.7 mm) >3 mm depth of Slush (max 12.7 mm)	20 kt
Ice (cold & dry)	15 kt

Intentionally left blank

LOW TEMPERATURE ALTIMETRY

Part A chapter 8 refers.
When temperature at the aerodrome is below the ISA value, it is the responsibility of the Commander to consider the effect of temperature on the minimum and reference altitudes. If corrections are to be made, the guidelines below shall be used.

● CORRECTIONS TO MSA

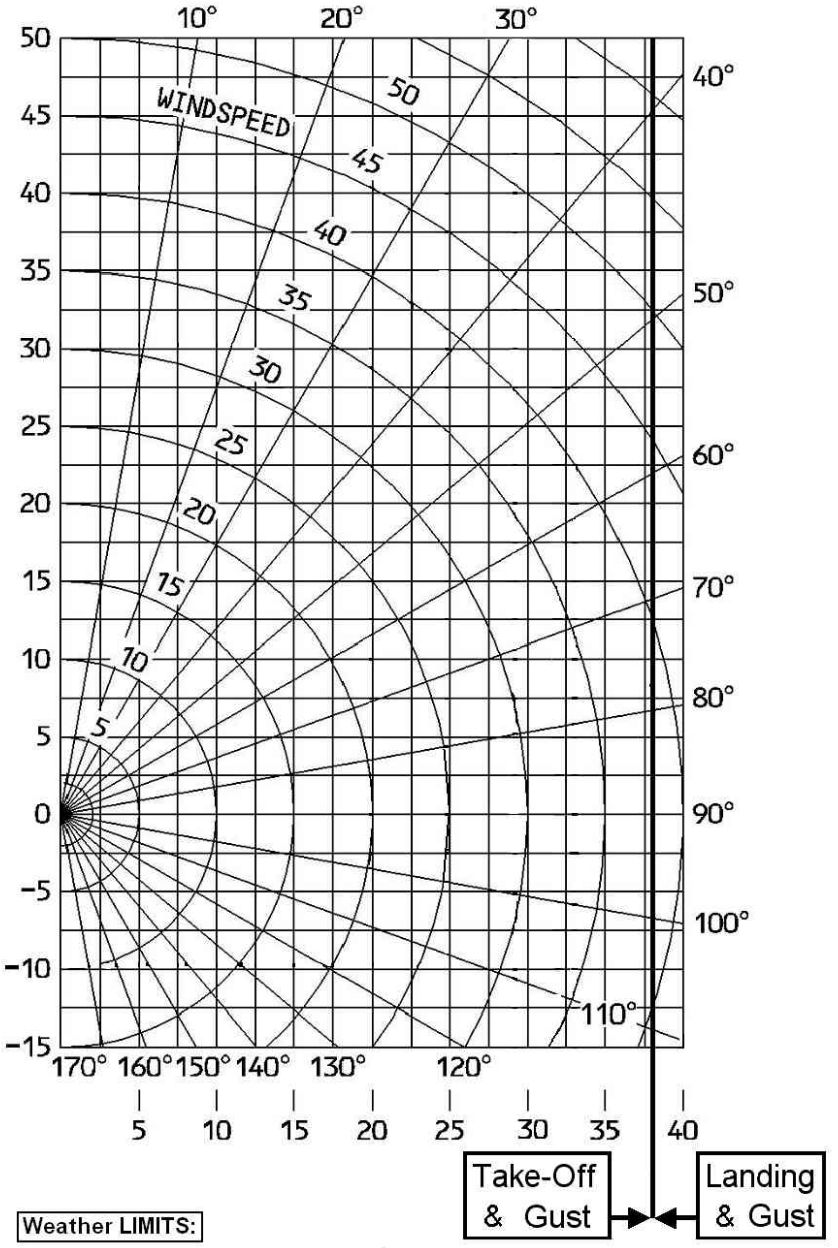
TEMPERATURE	CORRECTION
< ISA -15°C	+10%
< ISA -30°C	+20%

● CORRECTIONS TO ALTITUDES BELOW MSA

Aerodrome Temperature (°C)	Height AAL (ft)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Intentionally left blank

WIND COMPONENT CHART - A321



Weather LIMITS:

SO 1000' / 3000m 10 knots x-wind
JFO 500' / 2000m 15 knots x-wind
FO ≥ CAT I 20 knots x-wind

CAT II Autoland
30 knots headwind
20 knots x-wind
10 knots tailwind
15 knot x-wind limit for OEI Rollout with IDLE reverse only.

CAT II No Autoland
40 knots headwind
25 knots x-wind
10 knots tailwind

Intentionally left blank

ACARS LANDING FAIL CODE - A321

SYSTEM	FAILURE		CODE
ELEC	AC BUS 1 FAULT		ELEC01
	DC BUS 2 FAULT		ELEC02
	DC BUS 1+2 FAULT		ELEC03
	DC ESS BUS FAULT (IF NO ICE ACCRETION)		ELEC04
	DC ESS BUS FAULT (IF ICE ACCRETION)		ELEC05
	DC ESS SHED BUS (IF ICE ACCRETION)		ELEC06
	DC EMER CONFIG		ELEC07
	ELEC EMER CONFIG		ELEC08
F/CTL	ONE SPLR FAULT (IF NO SPOILER RUNAWAY SUSPECTED)		F/CTL01
	ONE SPLR FAULT (IF SPOILER RUNAWAY SUSPECTED)		F/CTL02
	TWO SPLR FAULT/GND SPLR 1+2 (3+4) FAULT		F/CTL03
	THREE SPLR FAULT		F/CTL04
	ALL SPLR FAULT		F/CTL05
	GND SPLR FAULT		F/CTL06
	SEC 1 OR SEC 3 FAULT		F/CTL07
	SEC 2 FAULT		F/CTL08
	SEC 2+3 FAULT		F/CTL09
	SEC 1+3 FAULT		F/CTL10
	SEC 1+2 FAULT		F/CTL11
	RUDDER JAM		F/CTL12
	SEC 1+2+3 FAULT		F/CTL13
	ALTN LAW/DIRECT LAW/ELAC 1+2/L+R ELEV FAULT/STAB JAM		F/CTL14
S/F	FLAPS AND SLATS AT 0		S/F01
	FLAPS<1	SLATS<1	S/F02
		SLATS≥1	S/F03
	1≤FLAPS<2	SLATS<1	S/F04
		SLATS≥1	S/F05
	2≤FLAPS<3	SLATS<1	S/F06
		SLATS≥1	S/F07
	FLAPS=3	SLATS<1	S/F08
		1≤SLATS≤3	S/F09
		SLATS>3	S/F10
	FLAPS>3	1≤SLATS≤3	S/F11
		SLATS>3	S/F12
	FLAPS FAULT	FLAPS<1	S/F13
		1≤FLAPS<2	S/F14
		2≤FLAPS<3	S/F15
		FLAPS=3	S/F16
		FLAPS>3	S/F17
	SLATS FAULT	SLATS<1	S/F18
		1≤SLATS≤3	S/F19
		SLATS>3	S/F20
HYD	G SYS LO PR		HYD01
	B SYS LO PR		HYD02
	Y SYS LO PR		HYD03
	G + B		HYD04
	G + Y		HYD05
	B + Y		HYD06
A.ICE	WING ANTI ICE SYS FAULT (IF ICE ACCRETION)		A.ICE01
BRK	ANTISKID FAULT		BRK01
	AUTO BRK FAULT		BRK02
NAV	IR 1+2+3 FAULT		NAV01
	UNRELIABLE SPEED INDICATION/ADR CHECK PROC		NAV02
	DUAL IR FAULT/DUAL ADR FAULT/ADR 1+2+3 FAULT		NAV03
BLEED	DUAL BLEED FAULT/WING OR ENG BLEED LEAK/ X BLEED FAULT/ENG BLEED LO TEMP (IF ICE ACCRETION)		BLEED01
ENG	REV UNLOCK (WITH BUFFET)		ENG01
	SHUTDOWN (IF ENG FIRE PB PUSHED & IF ICE ACCRETION)		ENG02

Intentionally left blank

IN FLIGHT PERFORMANCE

Intentionally left blank

FPE-PLP PRELIMINARY PAGES
TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

FPE-SPD Speeds
Speeds.....1/2

FPE-FPF Fuel Penalty Factors
Use of Fuel Penalty Factor Tables.....1/4
Fuel Penalty Factors/ECAM Alert Table..... 2/4
Fuel Penalty Factors/Inop Sys Table..... 3/4

[1]FPE-IFL In-Flight Landing
FPE-IFL-MAT Runway Condition Assessment Matrix for Landing
RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING.. 1/2
Wind Component..... 2/2
FPE-IFL-VAP VAPP Determination without failure
VAPP Determination without Failure..... 1/2
FPE-IFL-LD In-Flight Landing Distance Without Failure
Landing Distance - DRY 1/6
Landing Distance - GOOD 2/6
Landing Distance - GOOD TO MEDIUM 3/6
Landing Distance - MEDIUM 4/6
Landing Distance - MEDIUM TO POOR 5/6
Landing Distance - POOR 6/6
FPE-IFL-VAF VAPP Determination with Failure
VAPP Determination with Failure.....1/2
FPE-IFL-24 Landing Distance with Electrical System Failure
FPE-IFL-27 Landing Distance with Flight Controls System Failure
FPE-IFL-27A Landing Distance with Slats Flaps System Failure
FPE-IFL-29 Landing Distance with Hydraulic System Failure
FPE-IFL-30 Landing Distance with Anti Ice System Failure
FPE-IFL-32 Landing Distance with Brake System Failure
FPE-IFL-34 Landing Distance with Navigation System Failure
FPE-IFL-36 Landing Distance with Bleed System Failure
FPE-IFL-70 Landing Distance with Engine System Failure

FPE-OEI One Engine Inoperative

Ceilings....1/4
Gross Flight Path Descent at Green Dot Speed.... 2/4
Cruise at Long Range Cruise Speed.... 3/4
In Cruise Quick Check Long Range....4/4

FPE-AEO All Engines Operative

Optimum & Maximum Altitudes.... 1/4
In Cruise Quick Check at a Given Mach Number....2/4
Cost Index for Long Range Cruise Speed....2/4
Standard Descent....3/4
Quick Determination Table of Alternate Flight Planning....4/4

FPE-CAB Flight Without Cabin Pressurization

In Cruise Quick Check FL 100 Long Range.... 1/2

FPE-OPD Operating Data

Ground Distance / Air Distance Conversion.... 1/2
IAS / MACH Conversion.... 2/2

Localization Title	Page	ID	Reason
FPE-PLP-TOC In-Flight Landing	1/2	1	Documentation update: Deletion of the "00011000 VAPP Determination" table of content entry.
			Documentation update: Deletion of the "00010616 Landing Distance Without AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00010654 Landing Distance Without AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00010657 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" table of content entry.
			Documentation update: Deletion of the "00011004 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" table of content entry.
			Documentation update: Deletion of the "00011000.0012001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00011000.0022001 VAPP Determination" documentary unit.
			Documentation update: Deletion of the "00010616.0013001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010616.0024001 Landing Distance Without AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010654.0005001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010654.0046001 Landing Distance Without AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00010657.0013001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00010657.0024001 AUTOLAND Landing Distance With AUTOBRAKE - CONF 3" documentary unit.
			Documentation update: Deletion of the "00011004.0004001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
			Documentation update: Deletion of the "00011004.0050001 AUTOLAND Landing Distance With AUTOBRAKE - CONF FULL" documentary unit.
FPE-FPF Use of Fuel Penalty Factor Tables	1/4	1	Solution revised to correct minor typing errors and to change the term “ADDITIONAL FUEL” which is used already by some Regulations to designate a fuel quantity required at dispatch for some specific type of operations (e.g. ETOPS).
FPE-IFL-MAT RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING	1/2	1	Documentation update: Addition of "RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING" documentary unit
FPE-IFL-MAT Wind Component	2/2	2	Documentation update: Addition of "Wind Component" documentary unit
FPE-IFL-VAP VAPP Determination without Failure	1/2	1	Documentation update: Addition of "VAPP Determination without Failure" documentary unit
FPE-IFL-LD Landing Distance - DRY	1/6	1	Documentation update: Addition of "Landing Distance - DRY" documentary unit
FPE-IFL-LD Landing Distance - GOOD	2/6	2	Documentation update: Addition of "Landing Distance - GOOD" documentary unit
FPE-IFL-LD Landing Distance - GOOD TO MEDIUM	3/6	3	Documentation update: Addition of "Landing Distance - GOOD TO MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM	4/6	4	Documentation update: Addition of "Landing Distance - MEDIUM" documentary unit
FPE-IFL-LD Landing Distance - MEDIUM TO POOR	5/6	5	Documentation update: Addition of "Landing Distance - MEDIUM TO POOR" documentary unit
FPE-IFL-LD Landing Distance - POOR	6/6	6	Documentation update: Addition of "Landing Distance - POOR" documentary unit
FPE-IFL-VAF VAPP Determination with Failure	1/2	1	Documentation update: Addition of "VAPP Determination with Failure" documentary unit
FPE-IFL-24	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-27A	1/6	1	Documentation update: Addition of "" documentary unit
FPE-IFL-29	1/4	1	Documentation update: Addition of "" documentary unit
FPE-IFL-30	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-32	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-34	1/2	1	Documentation update: Addition of "" documentary unit
FPE-IFL-36	1/2	1	Documentation update: Addition of "" documentary unit

Localization Title	Page	ID	Reason
FPE-IFL-70	1/2	1	Documentation update: Addition of "" documentary unit

SPEEDS

OPERATING SPEEDS (KT)					
W (1000 KG)	F	S	Green dot FL < 200(1)	VLS CONF 3	VREF
52	130	168	188	121	116
56	135	174	194	125	121
60	140	180	200	130	125
64	144	186	206	134	129
68	149	192	212	138	133
72	153	197	218	142	137
76	157	203	224	146	141
80	161	208	230	150	144
84	165	213	236	154	148
88	169	218	242	157	151
92	173	223	248	161	155
94	175	226	251	163	157

(1) Above FL 200 add 1 kt per additional 1 000 ft.

Intentionally left blank

USE OF FUEL PENALTY FACTOR TABLES

1 **USE OF THE FUEL PENALTY FACTORS**

The Fuel Penalty Factors provided in the following tables are conservative values, given as a guideline in order to increase the crew awareness and to help the decision making.

Note: In case of failure impacting the fuel consumption, the fuel predictions provided by the FMS are no longer reliable (except in One Engine Inoperative OEI condition). The flight crew must still compute and monitor the actual fuel consumption.

Refer to the following tables in order to assess the impact of the failure on the fuel consumption after any ECAM alert that:

- Displays the line INCREASED FUEL CONSUMP in the STATUS SD page, or
- Displays Flight Control Surfaces in the INOP SYS, or
- Impacts the Landing Gears or Landing Gear Doors retraction (when extended).

The Fuel Penalty Factors given in these tables have been calculated taking into account:

- The FUEL CRITICAL INOP SYS, and
- The aircraft configuration, speed or altitude described in the CONDITIONS column.

Ensure that all these conditions are well met before applying the corresponding Fuel Penalty Factor.

METHODOLOGY

The methodology is the following:

- Check the **ECAM ALERT table** to determine if a Fuel Penalty Factor is applicable depending on the CONDITIONS column, then

- Check the **INOP SYS table** in order to determine if, according to the actual aircraft status, there is a Fuel Penalty Factor applicable depending on the CONDITIONS column

- If only one Fuel Penalty Factor (FPF) is applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x FPF
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

- If two or more Fuel Penalty Factors (FPF) are applicable:
  TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (FPF1 + FPF2 +...)
  The FMS fuel predictions must be recomputed to take into account this trip fuel penalty.

Note: Due to previous failures in flight or dispatch under MEL, some failures could have an impact on the fuel consumption:
- *Without being mentioned in the ECAM ALERT table (only through INOP SYS table), or*
- *If mentioned in the ECAM ALERT table, with additional INOP SYS (other than the one(s) described in the FUEL CRITICAL INOP SYS column for this specific ECAM alert) impacting also the fuel consumption.*

Example:

- Dispatch with the ELAC 1 inoperative under MEL
- HYD G SYS LO PR ECAM caution in flight
- These two failures lead to the loss of the left aileron
- INOP SYS will displayed "L AIL"

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is applicable (spoiler extended), sum the corresponding factor with the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
FPF (HYD G SYS LO PR) = 10 %
FPF (INOP SYS: L AIL) = 8 %
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x (10 % + 8 %)

If the Fuel Penalty Factor of the HYD G SYS LO PR ECAM alert is not applicable (spoiler remains retracted), apply the Fuel Penalty Factor related to the INOP SYS "L(R) AIL" partially extended.
Therefore, TRIP FUEL PENALTY = (FOB - EFOB at DEST) x 8 %

FUEL PENALTY FACTORS/ECAM ALERT TABLE

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
ELEC	AC BUS 1 FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	DC ESS BUS FAULT (equivalent to B SYS LO PR)	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
F/CTL	L(R) AIL FAULT	L(R) AIL	If one aileron is indicated fully extended (upwards or downwards)	27 %
		L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	SPLR FAULT	SPLR (affected)	If one spoiler is suspected fully extended See **Cruise Conditions:** **OPT SPEED..... GDOT +10KT** Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt increase speed to fly out of buffet condition. **CRUISE ALT.....AS REQUIRED** Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.	55 %
			If one spoiler or one pair of spoilers is partially extended (zero hinge moment)	10 %
		SPLR 3 with BLUE HYD	If spoiler 3 is partially extended after the loss of the B hydraulic system See	Up to 4 %
		SPLR 1 or 5 with GREEN HYD	If spoiler 1 or 5 is partially extended after the loss of the G hydraulic system See	Up to 9 % See
		SPLR 2 or 4 with YELLOW HYD	If spoiler 2 or 4 is partially extended after the loss of the Y hydraulic system See	Up to 9 % See
	FLAPS FAULT/LOCKED	FLAPS	If Flaps are extended	80 %
	SLATS FAULT/LOCKED	SLATS	If Slats are extended	60 %
	SLATS + FLAPS FAULT/LOCKED	SLATS+FLAPS	If Slats and Flaps are extended	100 %
HYD	B SYS LO PR	SPLR 3	If L(R) spoiler 3 is indicated extended (at the time of the failure)	10 %
	G SYS LO PR	SPLR 1+5	If L(R) spoiler 5 is indicated extended (at the time of the failure)	10 %
	Y SYS LO PR	SPLR 2+4	If L(R) spoilers 2 and 4 are indicated extended (at the time of the failure)	20 %
	G+B SYS LO PR	L+R AIL SPLR 1+3+5 L ELEV	Both ailerons are failed Spoilers 1, 3 and 5 See Left elevator is failed RAT is extended	10 % to 15 % See
	G+Y SYS LO PR	SPLR 1+2+4+5 STABILIZER	Stabilizer is jammed Spoilers 1, 2, 4 and 5 See	0 % to 10 % See
	B+Y SYS LO PR	SPLR 2+3+4 R ELEV	Spoilers 2, 3 and 4 See Right elevator is failed RAT extended	3 % to 10 % See
L/G	SHOCK ABSORBER FAULT	L/G RETRACT	All landing gears are extended (Also refer to PRO-SPO-25-10)	180 %
	GEAR NOT UPLOCKED			

Continued from the previous page

SYS	ECAM ALERT	FUEL CRITICAL INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
	BOGIE ALIGN FAULT (option)			
	GEAR UPLOCK FAULT			
	DOORS NOT CLOSED	L/G DOOR	All landing gears doors are extended	15 %

(1) During the flight, the spoiler(s) may gradually extend and increase(s) the fuel consumption.

(2) A spoiler can be suspected fully extended (runaway) if high roll rate has been experienced immediately after the failure, associated with a possible AP disconnection. A visual inspection, if time permits, can also confirm the full extension of the spoiler.

(3) The maximum value of the Fuel Penalty Factor provided in the table considers that the two pairs of corresponding spoilers gradually extend during the flight.

(4) The minimum value of the Fuel Penalty Factor provided in the table considers that all spoilers remain retracted. The maximum value has been calculated considering that all impacted spoilers gradually extend during the flight.

FUEL PENALTY FACTORS/INOP SYS TABLE

SYS	INOP SYS	CONDITIONS	FUEL PENALTY FACTOR
F/CTL	L(R) AIL or L+R AIL	If one or both aileron(s) is/are indicated partially extended	8 %
	FLAPS	If Flaps are extended	80 %
	SLATS	If Slats are extended	60 %
	SLATS+FLAPS	If Slats and Flaps are extended	100 %
L/G	L/G DOOR	All landing gears doors are extended	15 %

Intentionally left blank

RUNWAY CONDITION ASSESSMENT MATRIX FOR LANDING

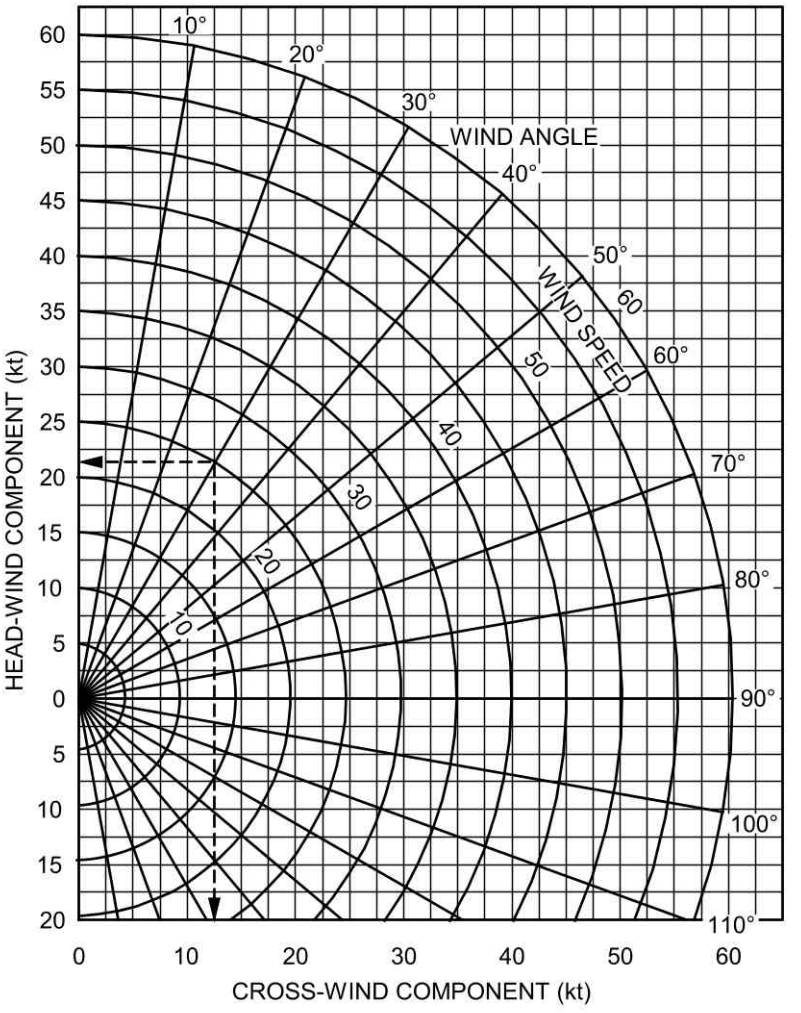
1

Code	Runway Condition	Deceleration And Directional Control Observation	Reported Braking Action	Max Crosswind (Gust included)
6	Dry	–	**Dry**	38kt
5	Damp Wet	Braking deceleration is normal for the wheel braking effort applied. Directional control is normal.	**Good**	38kt
	3 mm (1/8") or less of • Slush • Dry Snow • Wet Snow Frost			29kt
4	Compacted Snow (OAT at or below -15°C)	Braking deceleration and controllability is between Good and Medium.	**Good to Medium**	29kt
3	Slippery when wet Compacted Snow (OAT at or above -15°C) More than 3 mm (1/8") depth of: • Dry Snow - max 130 mm (5") • Wet Snow - max 30 mm (1 1/8")	Braking deceleration is noticeably reduced for the wheel braking effort applied. Directional control may be noticeably reduced.	**Medium**	25kt
2	Between 3 mm (1/8") depth of: • Water - max 12.7 mm (1/2") • Slush - max 12.7 mm (1/2")	Braking deceleration and controllability is between Medium and Poor. Potential for Hydroplaning exists.	**Medium to Poor**	20kt
1	Ice (cold & dry)	Braking deceleration is significantly reduced for the wheel braking effort applied. Directional control may be significantly reduced.	**Poor**	15kt
0	Wet ice Water on top of Compacted Snow Dry Snow or Wet Snow over Ice	Braking deceleration is minimal to non-existent for the wheel braking effort applied. Directional control may be uncertain.	**Nil**	–

Note: For Automatic Approach, Landing and Roll Out limitations, refer to FCOM LIM-22.

WIND COMPONENT

2



VAPP DETERMINATION WITHOUT FAILURE

1

The FMGS performs the following VAPP computation for landing in normal configuration (CONF 3 or CONF FULL).

VAPP = VLS + APPR COR

VLS												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VLS CONF FULL (kt) (=VREF)	116	119	123	127	131	135	139	143	146	150	153	157
VLS CONF3 (kt)	121	123	128	132	136	140	144	148	152	156	159	163

+

APPRoach **COR**rection

APPR COR = MAX of
- 5kt in case of A/THR ON
- 5kt in case of Ice Accretion in CONF FULL
- 10kt in case of Ice Accretion in CONF 3
- 1/3 Headwind component (MAX = 15kt)

⇩

VAPP

VAPP = VLS + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)

- If APPR COR > 1/3 Headwind component:
  Correct the landing distance (**SPD** column) with **SPD = APPR COR**
- If APPR COR = 1/3 Headwind component:
  No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation.

Note 1: In case of strong or gusty crosswind greater than 20kt, VAPP should be at least VLS + 5 kt. The 5kt increment above VLS may be increased up to 15kt at the flight crew's discretion.

Note 2: The **Autoland** correction in the Landing Distance table takes into account 5kt speed increment.

Intentionally left blank

LANDING DISTANCE - DRY

1

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 210**	- 10	+ 60	+ 80	+ 50	+ 140	+ 50	+ 30	- 20
AUTOBRAKE MED	**1 480**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 260 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 290**	- 10	+ 60	+ 80	+ 60	+ 160	+ 50	+ 30	- 30
AUTOBRAKE MED	**1 570**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 20	0
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 480 m**
Autoland	**+ 270 m**

LANDING DISTANCE - GOOD

2

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 520**	- 10	+ 50	+ 110	+ 80	+ 210	+ 60	+ 50	- 50
AUTOBRAKE MED	**1 560**	- 10	+ 50	+ 110	+ 80	+ 210	+ 70	+ 60	- 20
AUTOBRAKE LOW	**2 100**	- 20	+ 50	+ 140	+ 80	+ 210	+ 70	+ 30	0

Overweight Ldg proc	**+ 410 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 650**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
AUTOBRAKE MED	**1 690**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 40
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 80	+ 210	+ 80	+ 30	0

Overweight Ldg proc	**+ 420 m**
Autoland	**+ 330 m**

LANDING DISTANCE - GOOD TO MEDIUM

3

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 730**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
AUTOBRAKE MED	**1 780**	- 10	+ 40	+ 90	+ 70	+ 190	+ 60	+ 70	- 100
AUTOBRAKE LOW	**2 100**	- 20	+ 40	+ 140	+ 80	+ 210	+ 70	+ 40	- 10

Overweight Ldg proc	**+ 450 m**
Autoland	**+ 310 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 860**	- 10	+ 40	+ 90	+ 70	+ 200	+ 60	+ 80	- 110
AUTOBRAKE MED	**1 900**	- 10	+ 40	+ 100	+ 70	+ 200	+ 70	+ 80	- 120
AUTOBRAKE LOW	**2 240**	- 20	+ 50	+ 150	+ 90	+ 220	+ 80	+ 50	- 10

Overweight Ldg proc	**+ 460 m**
Autoland	**+ 320 m**

LANDING DISTANCE - MEDIUM

4

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**1 930**	- 10	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 130
AUTOBRAKE MED	**1 970**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 140
AUTOBRAKE LOW	**2 160**	- 20	+ 50	+ 140	+ 80	+ 230	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 430 m**
Autoland	**+ 320 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 070**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 110	- 150
AUTOBRAKE MED	**2 110**	- 20	+ 40	+ 110	+ 80	+ 230	+ 80	+ 120	- 160
AUTOBRAKE LOW	**2 310**	- 20	+ 50	+ 140	+ 90	+ 240	+ 80	+ 90	- 40

Overweight Ldg proc	**+ 440 m**
Autoland	**+ 330 m**

LANDING DISTANCE - MEDIUM TO POOR

5

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 210**	- 20	+ 70	+ 170	+ 130	+ 360	+ 120	+ 160	- 160
AUTOBRAKE MED	**2 240**	- 20	+ 70	+ 150	+ 130	+ 370	+ 110	+ 160	- 160
AUTOBRAKE LOW	**2 270**	- 20	+ 70	+ 150	+ 140	+ 370	+ 100	+ 170	- 50

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 390 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**2 430**	- 30	+ 80	+ 170	+ 150	+ 390	+ 130	+ 180	- 190
AUTOBRAKE MED	**2 460**	- 30	+ 80	+ 150	+ 150	+ 400	+ 120	+ 190	- 190
AUTOBRAKE LOW	**2 480**	- 30	+ 80	+ 170	+ 150	+ 390	+ 120	+ 190	- 70

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 410 m**

LANDING DISTANCE - POOR

6

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP=VLS without APPR COR.

CONF FULL

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 430**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 440
AUTOBRAKE MED	**3 450**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 780	- 450
AUTOBRAKE LOW	**3 480**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450

Overweight Ldg proc	**+ 350 m**
Autoland	**+ 380 m**

CONF 3

Corrections on Landing Distance (m)		WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
Braking Mode	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
Maximum MANUAL	**3 700**	- 30	+ 70	+ 160	+ 200	+ 580	+ 150	+ 850	- 490
AUTOBRAKE MED	**3 720**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 850	- 510
AUTOBRAKE LOW	**3 750**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510

Overweight Ldg proc	**+ 360 m**
Autoland	**+ 400 m**

VAPP DETERMINATION WITH FAILURE

1

VAPP = VREF + ΔVREF + APPR COR

VREF												
Weight (T)	52	54	58	62	66	70	74	78	82	86	90	94
VREF = VLS CONF FULL (kt)	116	119	123	127	131	135	139	143	146	150	153	157

+

ΔVREF
Refer to the applicable Landing Distance table

+

APPRoach CORrection	
ΔVREF ⩽ 10 kt	APPR COR = MAX of • 5kt in case of A/THR ON • 5kt in case of Ice Accretion in CONF FULL 10kt in case of Ice Accretion in CONF 3 • 1/3 Headwind component (MAX = 15kt) *APPR COR + ΔVREF must be limited to 20kt*
10 kt < ΔVREF < 20 kt	APPR COR = 1/3 Headwind component (MAX = 10kt) *APPR COR + ΔVREF must be limited to 20kt*
ΔVREF ⩾ 20 kt	APPR COR = 0kt *N/A displayed in the SPD column of the Landing Distance table*

⇩

VAPP
VAPP = VREF + ΔVREF + APPR COR

⇩

LANDING DISTANCE CORRECTION (**SPD** column in Landing Distance table)
• If APPR COR > 1/3 Headwind component: Correct the landing distance (**SPD** column) with **SPD = APPR COR** • If APPR COR = 1/3 Headwind component: No **SPD** column correction in the Landing Distance table

CAUTION	Any extra pilot approach speed increment must be added to VAPP, and must be taken into account in SPD column for Landing Distance computation. If N/A is displayed in the SPD column of the Landing Distance table, do not add any extra pilot approach speed increment.

Intentionally left blank

1

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC BUS 2 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 40
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 50
DC BUS 1+2 FAULT	FULL	0	**1 860**	- 20	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6	**2 020**	- 20	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 410**	- 10	+ 50	+ 80	+ 70	+ 170	+ 50	+ 30	- 30
	3	16	**1 490**	- 10	+ 60	+ 90	+ 70	+ 170	+ 50	+ 30	- 40
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**1 870**	- 10	+ 70	+ 110	+ 80	+ 200	+ 70	+ 90	INOP
	3	6 / 140kt	**2 030**	- 10	+ 80	+ 120	+ 80	+ 210	+ 70	+ 100	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 080**	- 10	+ 80	+ 110	+ 80	+ 210	+ 80	+ 90	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 70
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 80
DC BUS 2 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 100
	3	6	**2 010**	- 20	+ 70	+ 180	+ 120	+ 280	+ 100	+ 110	- 120
DC BUS 1+2 FAULT	FULL	0	**2 010**	- 20	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6	**2 210**	- 30	+ 80	+ 180	+ 120	+ 300	+ 110	+ 140	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 670**	- 20	+ 50	+ 130	+ 90	+ 240	+ 80	+ 70	- 70
	3	6	**1 820**	- 20	+ 60	+ 130	+ 100	+ 250	+ 80	+ 80	- 80
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**1 860**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 90
	3	16	**2 020**	- 20	+ 60	+ 140	+ 110	+ 250	+ 90	+ 80	- 110
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 020**	- 10	+ 70	+ 160	+ 110	+ 280	+ 90	+ 120	INOP
	3	6 / 140kt	**2 220**	- 20	+ 80	+ 170	+ 120	+ 300	+ 100	+ 140	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 300**	- 20	+ 80	+ 160	+ 130	+ 300	+ 100	+ 130	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 120
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
DC BUS 2 FAULT	FULL	0	**2 060**	- 20	+ 40	+ 130	+ 90	+ 220	+ 70	+ 110	- 160
	3	6	**2 230**	- 20	+ 40	+ 140	+ 90	+ 230	+ 80	+ 130	- 190
DC BUS 1+2 FAULT	FULL	0	**2 060**	- 20	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6	**2 240**	- 20	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**1 890**	- 10	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 030**	- 20	+ 40	+ 120	+ 80	+ 210	+ 70	+ 100	- 150
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 070**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 100	- 150
	3	16	**2 220**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 170
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 070**	- 10	+ 50	+ 130	+ 90	+ 220	+ 70	+ 120	INOP
	3	6 / 140kt	**2 250**	- 10	+ 60	+ 140	+ 100	+ 230	+ 80	+ 130	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 310**	- 10	+ 60	+ 130	+ 100	+ 230	+ 80	+ 120	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 160
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 180
DC BUS 2 FAULT	FULL	0	**2 320**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 160	- 230
	3	6	**2 530**	- 20	+ 50	+ 150	+ 110	+ 270	+ 90	+ 180	- 270
DC BUS 1+2 FAULT	FULL	0	**2 340**	- 20	+ 50	+ 140	+ 100	+ 260	+ 80	+ 170	INOP
	3	6	**2 550**	- 20	+ 50	+ 160	+ 110	+ 270	+ 100	+ 190	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 140**	- 20	+ 40	+ 120	+ 90	+ 250	+ 70	+ 130	- 190
	3	6	**2 290**	- 20	+ 40	+ 130	+ 90	+ 250	+ 90	+ 150	- 220
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 330**	- 20	+ 40	+ 120	+ 100	+ 250	+ 80	+ 140	- 220
	3	16	**2 490**	- 20	+ 40	+ 120	+ 110	+ 250	+ 90	+ 150	- 240
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 340**	- 10	+ 50	+ 150	+ 100	+ 260	+ 90	+ 170	INOP
	3	6 / 140kt	**2 560**	- 10	+ 50	+ 160	+ 110	+ 280	+ 90	+ 190	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**2 600**	- 10	+ 50	+ 150	+ 110	+ 270	+ 100	+ 180	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+∆VREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	∆VREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 210
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 240
DC BUS 2 FAULT	FULL	0	**2 770**	- 30	+ 90	+ 240	+ 190	+ 470	+ 170	+ 300	- 300
	3	6	**3 160**	- 40	+ 100	+ 260	+ 220	+ 540	+ 160	+ 380	- 390
DC BUS 1+2 FAULT	FULL	0	**2 810**	- 30	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6	**3 200**	- 40	+ 100	+ 270	+ 230	+ 560	+ 170	+ 410	INOP
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 170	+ 440	+ 120	+ 220	- 250
	3	6	**2 770**	- 30	+ 80	+ 200	+ 180	+ 470	+ 140	+ 260	- 290
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**2 800**	- 30	+ 80	+ 180	+ 180	+ 450	+ 140	+ 250	- 290
	3	16	**3 060**	- 30	+ 80	+ 190	+ 190	+ 470	+ 150	+ 270	- 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	**2 820**	- 10	+ 90	+ 250	+ 190	+ 500	+ 170	+ 320	INOP
	3	6 / 140kt	**3 210**	- 20	+ 100	+ 270	+ 230	+ 570	+ 170	+ 410	INOP
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	**3 260**	- 30	+ 100	+ 230	+ 220	+ 510	+ 170	+ 370	INOP

Continued from the previous page

ELECTRICAL SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
AC BUS 1 FAULT	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 530
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 590
DC BUS 2 FAULT	FULL	0	**4 470**	- 30	+ 70	+ 220	+ 240	+ 710	+ 190	+ 1 550	- 990
	3	6	**4 980**	- 40	+ 80	+ 240	+ 270	+ 750	+ 200	+ 1 790	- 1 180
DC BUS 1+2 FAULT	FULL	0	Landing Distance greater than 6 000 m for all conditions								
	3	6	Landing Distance greater than 6 000 m for all conditions								
DC ESS BUS FAULT (if no Ice Accretion)	FULL	0	**4 260**	- 30	+ 50	+ 180	+ 190	+ 730	+ 160	+ 2 020	- 1 170
	3	6	**4 570**	- 30	+ 50	+ 190	+ 210	+ 750	+ 180	+ 2 130	- 1 280
DC ESS BUS FAULT (if Ice Accretion)	FULL	10	**4 530**	- 30	+ 50	+ 180	+ 210	+ 740	+ 180	+ 2 010	- 1 220
	3	16	**4 860**	- 30	+ 50	+ 180	+ 220	+ 750	+ 190	+ 2 130	- 1 340
DC ESS SHED BUS (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DC EMER CONFIG REF DIST calculated with 140kt min	FULL	0 / 140kt	Landing Distance greater than 6 000 m for all conditions								
	3	6 / 140kt	Landing Distance greater than 6 000 m for all conditions								
ELEC EMER CONFIG REF DIST calculated with 140kt min	3	10 / 140kt	Landing Distance greater than 6 000 m for all conditions								

1

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 290**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 30
	3	6	**1 380**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 430**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 50	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
THREE SPLR FAULT	FULL	0	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 40
	3	6	**1 500**	- 10	+ 50	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
ALL SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
GND SPLR FAULT	FULL	0	**1 530**	- 10	+ 50	+ 130	+ 60	+ 150	+ 60	+ 50	- 50
	3	6	**1 630**	- 10	+ 50	+ 130	+ 70	+ 160	+ 60	+ 50	- 60
SEC 1 or SEC 3 FAULT	FULL	0	**1 320**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 400**	- 10	+ 50	+ 100	+ 60	+ 150	+ 60	+ 40	- 30
SEC 2 FAULT	FULL	0	**1 270**	- 10	+ 50	+ 80	+ 60	+ 150	+ 40	+ 30	- 20
	3	6	**1 350**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SEC 2+3 FAULT	FULL	0	**1 370**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 460**	- 10	+ 60	+ 110	+ 60	+ 150	+ 60	+ 40	- 40
SEC 1+3 FAULT	FULL	0	**1 460**	- 10	+ 50	+ 110	+ 60	+ 150	+ 50	+ 40	- 50
	3	6	**1 550**	- 10	+ 50	+ 120	+ 70	+ 150	+ 60	+ 50	- 60
SEC 1+2 FAULT	FULL	0	**1 360**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 40	- 30
	3	6	**1 450**	- 10	+ 50	+ 100	+ 60	+ 160	+ 50	+ 40	- 40
RUDDER JAM	FULL	0	**1 430**	- 10	+ 60	+ 120	+ 90	+ 190	+ 60	+ 50	- 30
	3	6	**1 570**	- 10	+ 70	+ 120	+ 90	+ 200	+ 70	+ 50	- 40
SEC 1+2+3 FAULT	3	10	**1 700**	- 10	+ 50	+ 140	+ 70	+ 160	+ 70	+ 60	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 660**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 60	- 60
	3	6	**1 830**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**1 920**	- 20	+ 60	+ 130	+ 110	+ 250	+ 80	+ 80	- 80
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**1 800**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 80
	3	6	**1 990**	- 20	+ 60	+ 160	+ 120	+ 270	+ 90	+ 100	- 100
THREE SPLR FAULT	FULL	0	**1 890**	- 20	+ 60	+ 170	+ 110	+ 270	+ 90	+ 100	- 90
	3	6	**2 090**	- 20	+ 70	+ 180	+ 130	+ 290	+ 100	+ 120	- 110
ALL SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
GND SPLR FAULT	FULL	0	**2 150**	- 20	+ 80	+ 240	+ 140	+ 320	+ 110	+ 160	- 140
	3	6	**2 360**	- 20	+ 80	+ 250	+ 160	+ 340	+ 120	+ 190	- 170
SEC 1 or SEC 3 FAULT	FULL	0	**1 720**	- 20	+ 60	+ 140	+ 90	+ 240	+ 80	+ 80	- 70
	3	6	**1 870**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 80	- 80
SEC 2 FAULT	FULL	0	**1 620**	- 10	+ 50	+ 120	+ 90	+ 220	+ 70	+ 60	- 50
	3	6	**1 770**	- 20	+ 50	+ 120	+ 90	+ 240	+ 80	+ 70	- 70
SEC 2+3 FAULT	FULL	0	**1 820**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 100
SEC 1+3 FAULT	FULL	0	**1 990**	- 20	+ 70	+ 190	+ 120	+ 290	+ 100	+ 120	- 130
	3	6	**2 200**	- 20	+ 70	+ 210	+ 140	+ 310	+ 110	+ 150	- 160
SEC 1+2 FAULT	FULL	0	**1 810**	- 20	+ 60	+ 160	+ 100	+ 260	+ 90	+ 90	- 90
	3	6	**1 960**	- 20	+ 60	+ 160	+ 110	+ 270	+ 100	+ 100	- 110
RUDDER JAM	FULL	0	**1 820**	- 20	+ 60	+ 140	+ 110	+ 270	+ 90	+ 90	- 80
	3	6	**2 010**	- 20	+ 70	+ 160	+ 130	+ 290	+ 100	+ 110	- 100
SEC 1+2+3 FAULT	3	10	**2 500**	- 30	+ 80	+ 260	+ 160	+ 350	+ 140	+ 210	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**1 870**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 030**	- 20	+ 40	+ 110	+ 80	+ 200	+ 80	+ 100	- 120
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 110**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 90	- 130
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 020**	- 20	+ 40	+ 130	+ 80	+ 210	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 150
THREE SPLR FAULT	FULL	0	**2 120**	- 20	+ 40	+ 140	+ 90	+ 220	+ 80	+ 120	- 150
	3	6	**2 300**	- 20	+ 40	+ 150	+ 100	+ 230	+ 80	+ 130	- 170
ALL SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
GND SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 190	+ 110	+ 250	+ 90	+ 180	- 210
	3	6	**2 570**	- 20	+ 50	+ 200	+ 120	+ 260	+ 100	+ 190	- 230
SEC 1 or SEC 3 FAULT	FULL	0	**1 940**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
	3	6	**2 080**	- 20	+ 40	+ 110	+ 90	+ 210	+ 70	+ 100	- 130
SEC 2 FAULT	FULL	0	**1 830**	- 10	+ 40	+ 100	+ 70	+ 200	+ 60	+ 80	- 100
	3	6	**1 970**	- 20	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 110
SEC 2+3 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 130	+ 80	+ 210	+ 80	+ 110	- 130
	3	6	**2 220**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 120	- 160
SEC 1+3 FAULT	FULL	0	**2 220**	- 20	+ 40	+ 160	+ 100	+ 230	+ 80	+ 140	- 200
	3	6	**2 410**	- 20	+ 50	+ 160	+ 110	+ 240	+ 90	+ 160	- 230
SEC 1+2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 120	+ 80	+ 220	+ 70	+ 110	- 150
	3	6	**2 170**	- 20	+ 40	+ 130	+ 90	+ 220	+ 80	+ 110	- 170
RUDDER JAM	FULL	0	**2 040**	- 20	+ 50	+ 120	+ 100	+ 240	+ 70	+ 110	- 120
	3	6	**2 220**	- 20	+ 50	+ 130	+ 110	+ 250	+ 90	+ 130	- 150
SEC 1+2+3 FAULT	3	10	**2 690**	- 20	+ 50	+ 200	+ 120	+ 260	+ 110	+ 200	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 090**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 120	- 140
	3	6	**2 280**	- 20	+ 40	+ 120	+ 100	+ 240	+ 80	+ 130	- 170
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 360**	- 20	+ 40	+ 120	+ 100	+ 240	+ 90	+ 140	- 170
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 270**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 150	- 180
	3	6	**2 470**	- 20	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 210
THREE SPLR FAULT	FULL	0	**2 390**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 200
	3	6	**2 600**	- 20	+ 50	+ 160	+ 120	+ 270	+ 90	+ 190	- 230
ALL SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
GND SPLR FAULT	FULL	0	**2 710**	- 20	+ 60	+ 210	+ 130	+ 290	+ 110	+ 250	- 280
	3	6	**2 920**	- 20	+ 60	+ 220	+ 140	+ 300	+ 120	+ 280	- 310
SEC 1 or SEC 3 FAULT	FULL	0	**2 180**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 160
	3	6	**2 330**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 180
SEC 2 FAULT	FULL	0	**2 040**	- 20	+ 40	+ 110	+ 80	+ 230	+ 70	+ 110	- 130
	3	6	**2 200**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 120	- 150
SEC 2+3 FAULT	FULL	0	**2 300**	- 20	+ 50	+ 140	+ 100	+ 250	+ 80	+ 160	- 180
	3	6	**2 500**	- 20	+ 50	+ 150	+ 110	+ 260	+ 90	+ 170	- 210
SEC 1+3 FAULT	FULL	0	**2 510**	- 20	+ 50	+ 170	+ 110	+ 270	+ 100	+ 200	- 260
	3	6	**2 730**	- 20	+ 50	+ 180	+ 130	+ 280	+ 100	+ 220	- 310
SEC 1+2 FAULT	FULL	0	**2 290**	- 20	+ 50	+ 140	+ 100	+ 250	+ 90	+ 150	- 210
	3	6	**2 440**	- 20	+ 50	+ 140	+ 110	+ 260	+ 90	+ 160	- 220
RUDDER JAM	FULL	0	**2 260**	- 20	+ 50	+ 130	+ 120	+ 280	+ 90	+ 150	- 170
	3	6	**2 470**	- 20	+ 60	+ 130	+ 130	+ 290	+ 90	+ 170	- 190
SEC 1+2+3 FAULT	3	10	**3 060**	- 30	+ 60	+ 230	+ 140	+ 310	+ 120	+ 290	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**2 450**	- 30	+ 80	+ 160	+ 150	+ 400	+ 110	+ 190	- 170
	3	6	**2 760**	- 30	+ 80	+ 200	+ 170	+ 430	+ 150	+ 250	- 220
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**2 880**	- 30	+ 80	+ 180	+ 180	+ 440	+ 130	+ 260	- 240
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**2 690**	- 30	+ 90	+ 210	+ 170	+ 450	+ 150	+ 260	- 220
	3	6	**3 040**	- 30	+ 100	+ 240	+ 200	+ 480	+ 170	+ 340	- 280
THREE SPLR FAULT	FULL	0	**2 890**	- 30	+ 100	+ 260	+ 200	+ 480	+ 160	+ 320	- 260
	3	6	**3 250**	- 40	+ 100	+ 270	+ 230	+ 530	+ 180	+ 410	- 330
ALL SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
GND SPLR FAULT	FULL	0	**3 400**	- 40	+ 120	+ 350	+ 260	+ 590	+ 210	+ 560	- 370
	3	6	**3 790**	- 50	+ 120	+ 370	+ 300	+ 630	+ 220	+ 690	- 450
SEC 1 or SEC 3 FAULT	FULL	0	**2 580**	- 30	+ 80	+ 190	+ 170	+ 430	+ 120	+ 230	- 200
	3	6	**2 810**	- 30	+ 80	+ 200	+ 180	+ 440	+ 150	+ 260	- 230
SEC 2 FAULT	FULL	0	**2 380**	- 30	+ 70	+ 170	+ 140	+ 380	+ 120	+ 180	- 160
	3	6	**2 620**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 220	- 200
SEC 2+3 FAULT	FULL	0	**2 740**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 230
	3	6	**3 110**	- 40	+ 100	+ 250	+ 210	+ 510	+ 160	+ 360	- 300
SEC 1+3 FAULT	FULL	0	**3 070**	- 40	+ 100	+ 280	+ 220	+ 520	+ 170	+ 400	- 360
	3	6	**3 470**	- 40	+ 110	+ 290	+ 260	+ 570	+ 170	+ 510	- 460
SEC 1+2 FAULT	FULL	0	**2 750**	- 30	+ 90	+ 230	+ 180	+ 450	+ 160	+ 280	- 270
	3	6	**2 990**	- 30	+ 90	+ 220	+ 200	+ 480	+ 160	+ 310	- 310
RUDDER JAM	FULL	0	**2 550**	- 30	+ 90	+ 170	+ 180	+ 430	+ 120	+ 220	- 190
	3	6	**2 820**	- 30	+ 90	+ 190	+ 200	+ 460	+ 140	+ 270	- 240
SEC 1+2+3 FAULT	3	10	**4 000**	- 50	+ 130	+ 370	+ 310	+ 640	+ 230	+ 710	INOP
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

Continued from the previous page

FLIGHT CONTROLS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ONE SPLR FAULT (if no SPOILER runaway suspected)	FULL	0	**3 720**	- 30	+ 70	+ 170	+ 200	+ 590	+ 150	+ 880	- 500
	3	6	**4 150**	- 40	+ 80	+ 190	+ 220	+ 620	+ 180	+ 1 030	- 600
ONE SPLR FAULT (if SPOILER runaway suspected)	3	10	**4 270**	- 40	+ 80	+ 180	+ 230	+ 630	+ 170	+ 1 040	- 610
TWO SPLR FAULT/ GND SPLR 1+2(3+4) FAULT	FULL	0	**4 120**	- 40	+ 80	+ 200	+ 230	+ 630	+ 170	+ 1 090	- 610
	3	6	**4 580**	- 40	+ 90	+ 230	+ 260	+ 660	+ 190	+ 1 260	- 720
THREE SPLR FAULT	FULL	0	**4 440**	- 40	+ 90	+ 230	+ 250	+ 660	+ 190	+ 1 280	- 700
	3	6	**4 900**	- 40	+ 90	+ 260	+ 280	+ 690	+ 210	+ 1 450	- 810
ALL SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
GND SPLR FAULT	FULL	0	**5 230**	- 50	+ 100	+ 320	+ 320	+ 740	+ 220	+ 1 840	- 950
	3	6	**5 700**	- 50	+ 110	+ 340	+ 350	+ 760	+ 250	+ 2 040	- 1 070
SEC 1 or SEC 3 FAULT	FULL	0	**3 940**	- 30	+ 80	+ 190	+ 210	+ 610	+ 170	+ 990	- 560
	3	6	**4 220**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 060	- 610
SEC 2 FAULT	FULL	0	**3 640**	- 30	+ 70	+ 160	+ 190	+ 590	+ 150	+ 840	- 480
	3	6	**3 930**	- 30	+ 70	+ 170	+ 210	+ 600	+ 160	+ 920	- 540
SEC 2+3 FAULT	FULL	0	**4 220**	- 40	+ 80	+ 210	+ 240	+ 640	+ 170	+ 1 150	- 640
	3	6	**4 680**	- 40	+ 90	+ 240	+ 270	+ 670	+ 200	+ 1 320	- 750
SEC 1+3 FAULT	FULL	0	**4 710**	- 40	+ 90	+ 260	+ 270	+ 690	+ 200	+ 1 450	- 870
	3	6	**5 200**	- 50	+ 100	+ 280	+ 310	+ 720	+ 220	+ 1 660	- 1 030
SEC 1+2 FAULT	FULL	0	**4 240**	- 40	+ 80	+ 220	+ 240	+ 640	+ 180	+ 1 160	- 690
	3	6	**4 490**	- 40	+ 80	+ 210	+ 250	+ 660	+ 190	+ 1 210	- 740
RUDDER JAM	FULL	0	**3 740**	- 40	+ 90	+ 170	+ 230	+ 640	+ 160	+ 880	- 500
	3	6	**4 070**	- 40	+ 90	+ 190	+ 250	+ 660	+ 190	+ 970	- 560
SEC 1+2+3 FAULT	3	10	Landing Distance greater than 6 000 m for all conditions								
ALTN LAW/DIRECT LAW/ ELAC 1+2/L+R ELEV FAULT/STAB JAM	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 160**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 60	- 40
FLAPS<1	SLATS<1	3	45	**2 060**	- 20	+ 70	N/A	+ 90	+ 180	+ 80	+ 50	- 40
	SLATS≥1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
1≤FLAPS<2	SLATS<1	3	30	**1 730**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 40
	SLATS≥1	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
2≤FLAPS<3	SLATS<1	3	25	**1 630**	- 10	+ 60	N/A	+ 80	+ 170	+ 60	+ 40	- 30
	SLATS≥1	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
FLAPS=3	SLATS<1	3	25	**1 600**	- 10	+ 60	N/A	+ 70	+ 170	+ 60	+ 30	- 30
	1≤SLATS≤3	3	10	**1 390**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 320**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS>3	1≤SLATS≤3	FULL	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	SLATS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
FLAPS FAULT	FLAPS<1	3	30	**1 750**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 50	- 30
	1≤FLAPS<2	3	15	**1 480**	- 10	+ 60	+ 110	+ 70	+ 170	+ 70	+ 40	- 30
	2≤FLAPS<3	3	10	**1 400**	- 10	+ 60	+ 100	+ 70	+ 170	+ 60	+ 30	- 30
	FLAPS=3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
	FLAPS>3	FULL	5	**1 300**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 20
SLATS FAULT	SLATS<1	3	25	**1 590**	- 10	+ 50	N/A	+ 70	+ 160	+ 60	+ 40	- 30
	1≤SLATS≤3	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30
	SLATS>3	3	5	**1 330**	- 10	+ 50	+ 80	+ 60	+ 160	+ 50	+ 30	- 20

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 770**	- 30	+ 70	N/A	+ 160	+ 300	+ 130	+ 110	- 140
FLAPS<1	SLATS<1	3	45	**2 650**	- 20	+ 70	N/A	+ 150	+ 290	+ 130	+ 110	- 130
	SLATS≥1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
1≤FLAPS<2	SLATS<1	3	30	**2 280**	- 20	+ 60	N/A	+ 130	+ 260	+ 100	+ 90	- 100
	SLATS≥1	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
2≤FLAPS<3	SLATS<1	3	25	**2 150**	- 20	+ 60	N/A	+ 120	+ 250	+ 100	+ 80	- 90
	SLATS≥1	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
FLAPS=3	SLATS<1	3	25	**2 100**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 90
	1≤SLATS≤3	3	10	**1 810**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
FLAPS>3	1≤SLATS≤3	FULL	10	**1 760**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 60	- 60
	SLATS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
FLAPS FAULT	FLAPS<1	3	30	**2 240**	- 20	+ 60	N/A	+ 130	+ 270	+ 100	+ 80	- 100
	1≤FLAPS<2	3	15	**1 970**	- 20	+ 60	+ 130	+ 110	+ 260	+ 90	+ 80	- 80
	2≤FLAPS<3	3	10	**1 850**	- 20	+ 60	+ 130	+ 100	+ 250	+ 90	+ 70	- 70
	FLAPS=3	3	10	**1 800**	- 20	+ 60	+ 120	+ 100	+ 240	+ 80	+ 70	- 70
	FLAPS>3	FULL	5	**1 670**	- 20	+ 50	+ 110	+ 90	+ 230	+ 70	+ 60	- 50
SLATS FAULT	SLATS<1	3	25	**2 090**	- 20	+ 60	N/A	+ 110	+ 240	+ 90	+ 70	- 80
	1≤SLATS≤3	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60
	SLATS>3	3	5	**1 710**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**2 800**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
FLAPS<1	SLATS<1	3	45	**2 710**	- 20	+ 40	N/A	+ 110	+ 220	+ 90	+ 110	- 180
	SLATS≥1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
1≤FLAPS<2	SLATS<1	3	30	**2 420**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 150
	SLATS≥1	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
2≤FLAPS<3	SLATS<1	3	25	**2 310**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	SLATS≥1	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
FLAPS=3	SLATS<1	3	25	**2 260**	- 20	+ 40	N/A	+ 90	+ 200	+ 80	+ 90	- 140
	1≤SLATS≤3	3	10	**2 010**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 120
	SLATS>3	3	5	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 90	- 110
FLAPS>3	1≤SLATS≤3	FULL	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
FLAPS FAULT	FLAPS<1	3	30	**2 370**	- 20	+ 40	N/A	+ 90	+ 210	+ 80	+ 100	- 140
	1≤FLAPS<2	3	15	**2 150**	- 20	+ 40	+ 110	+ 90	+ 210	+ 80	+ 100	- 130
	2≤FLAPS<3	3	10	**2 050**	- 20	+ 40	+ 100	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS=3	3	10	**2 010**	- 20	+ 40	+ 90	+ 80	+ 210	+ 70	+ 90	- 120
	FLAPS>3	FULL	5	**1 880**	- 10	+ 40	+ 90	+ 80	+ 200	+ 60	+ 80	- 100
SLATS FAULT	SLATS<1	3	25	**2 240**	- 20	+ 40	N/A	+ 90	+ 200	+ 70	+ 80	- 120
	1≤SLATS≤3	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110
	SLATS>3	3	5	**1 910**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**3 180**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 170	- 260
FLAPS<1	SLATS<1	3	45	**3 080**	- 20	+ 50	N/A	+ 120	+ 270	+ 110	+ 160	- 250
	SLATS≥1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
1≤FLAPS<2	SLATS<1	3	30	**2 730**	- 20	+ 40	N/A	+ 110	+ 250	+ 100	+ 150	- 220
	SLATS≥1	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
2≤FLAPS<3	SLATS<1	3	25	**2 600**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 200
	SLATS≥1	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
FLAPS=3	SLATS<1	3	25	**2 530**	- 20	+ 40	N/A	+ 100	+ 240	+ 90	+ 130	- 190
	1≤SLATS≤3	3	10	**2 260**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	SLATS>3	3	5	**2 160**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
FLAPS>3	1≤SLATS≤3	FULL	10	**2 200**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 120	- 150
	SLATS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
FLAPS FAULT	FLAPS<1	3	30	**2 690**	- 20	+ 40	N/A	+ 110	+ 250	+ 90	+ 140	- 210
	1≤FLAPS<2	3	15	**2 440**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 140	- 190
	2≤FLAPS<3	3	10	**2 320**	- 20	+ 40	+ 110	+ 100	+ 250	+ 80	+ 130	- 170
	FLAPS=3	3	10	**2 250**	- 20	+ 40	+ 110	+ 90	+ 240	+ 80	+ 130	- 160
	FLAPS>3	FULL	5	**2 110**	- 20	+ 40	+ 100	+ 90	+ 240	+ 70	+ 110	- 140
SLATS FAULT	SLATS<1	3	25	**2 490**	- 20	+ 40	N/A	+ 100	+ 230	+ 80	+ 120	- 170
	1≤SLATS≤3	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150
	SLATS>3	3	5	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 70	+ 110	- 140

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	**4 390**	- 40	+ 100	N/A	+ 270	+ 560	+ 230	+ 420	- 480
FLAPS<1	SLATS<1	3	45	**4 240**	- 40	+ 100	N/A	+ 270	+ 560	+ 210	+ 420	- 460
	SLATS≥1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
1≤FLAPS<2	SLATS<1	3	30	**3 520**	- 40	+ 90	N/A	+ 220	+ 500	+ 160	+ 320	- 340
	SLATS≥1	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
2≤FLAPS<3	SLATS<1	3	25	**3 270**	- 30	+ 80	N/A	+ 200	+ 460	+ 160	+ 280	- 300
	SLATS≥1	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
FLAPS=3	SLATS<1	3	25	**3 090**	- 30	+ 80	N/A	+ 180	+ 430	+ 150	+ 240	- 260
	1≤SLATS≤3	3	10	**2 710**	- 30	+ 80	+ 180	+ 160	+ 430	+ 140	+ 220	- 220
	SLATS>3	3	5	**2 580**	- 30	+ 70	+ 180	+ 160	+ 430	+ 120	+ 210	- 200
FLAPS>3	1≤SLATS≤3	FULL	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 410	+ 130	+ 190	- 190
	SLATS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
FLAPS FAULT	FLAPS<1	3	30	**3 590**	- 40	+ 90	N/A	+ 230	+ 510	+ 200	+ 340	- 350
	1≤FLAPS<2	3	15	**3 080**	- 30	+ 90	+ 190	+ 200	+ 480	+ 180	+ 290	- 280
	2≤FLAPS<3	3	10	**2 850**	- 30	+ 80	+ 180	+ 180	+ 460	+ 160	+ 270	- 250
	FLAPS=3	3	10	**2 710**	- 30	+ 80	+ 170	+ 170	+ 430	+ 130	+ 220	- 220
	FLAPS>3	FULL	5	**2 480**	- 30	+ 70	+ 150	+ 150	+ 410	+ 120	+ 200	- 180
SLATS FAULT	SLATS<1	3	25	**3 020**	- 30	+ 80	N/A	+ 170	+ 390	+ 140	+ 210	- 230
	1≤SLATS≤3	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190
	SLATS>3	3	5	**2 530**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 190	- 180

Continued from the previous page

SLATS AND FLAPS SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

POOR												
Corrections on Landing Distance (m)					WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE		FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
FLAPS AND SLATS AT 0		1	50	Landing Distance greater than 6 000 m for all conditions								
FLAPS<1	SLATS<1	3	45	Landing Distance greater than 6 000 m for all conditions								
	SLATS≥1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
1≤FLAPS<2	SLATS<1	3	30	**5 410**	- 30	+ 50	N/A	+ 250	+ 770	+ 210	+ 2 230	- 1 060
	SLATS≥1	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
2≤FLAPS<3	SLATS<1	3	25	**5 080**	- 30	+ 50	N/A	+ 230	+ 750	+ 190	+ 2 100	- 980
	SLATS≥1	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
FLAPS=3	SLATS<1	3	25	**4 750**	- 30	+ 50	N/A	+ 210	+ 730	+ 190	+ 1 880	- 880
	1≤SLATS≤3	3	10	**4 380**	- 30	+ 50	+ 150	+ 200	+ 730	+ 170	+ 1 910	- 820
	SLATS>3	3	5	**4 240**	- 30	+ 50	+ 160	+ 190	+ 720	+ 160	+ 1 900	- 810
FLAPS>3	1≤SLATS≤3	FULL	10	**4 180**	- 20	+ 50	+ 150	+ 190	+ 710	+ 160	+ 1 750	- 760
	SLATS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
FLAPS FAULT	FLAPS<1	3	30	**5 600**	- 30	+ 50	N/A	+ 260	+ 780	+ 210	+ 2 370	- 1 130
	1≤FLAPS<2	3	15	**4 980**	- 30	+ 50	+ 180	+ 230	+ 760	+ 190	+ 2 230	- 1 000
	2≤FLAPS<3	3	10	**4 660**	- 30	+ 50	+ 180	+ 210	+ 750	+ 190	+ 2 100	- 920
	FLAPS=3	3	10	**4 370**	- 30	+ 50	+ 160	+ 200	+ 730	+ 170	+ 1 900	- 820
	FLAPS>3	FULL	5	**4 050**	- 20	+ 40	+ 160	+ 180	+ 700	+ 160	+ 1 750	- 750
SLATS FAULT	SLATS<1	3	25	**4 270**	- 40	+ 70	N/A	+ 220	+ 600	+ 180	+ 860	- 550
	1≤SLATS≤3	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510
	SLATS>3	3	5	**3 790**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 500

1

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 390**	- 10	+ 50	+ 90	+ 50	+ 130	+ 50	+ 40	- 40
	3	6	**1 490**	- 10	+ 50	+ 90	+ 60	+ 140	+ 50	+ 40	- 50
B SYS LO PR	FULL	0	**1 290**	- 10	+ 50	+ 90	+ 60	+ 150	+ 50	+ 30	- 30
	3	6	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
Y SYS LO PR	FULL	0	**1 320**	- 10	+ 50	+ 100	+ 60	+ 140	+ 50	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 100	+ 60	+ 150	+ 50	+ 40	- 30
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**1 890**	- 10	+ 50	N/A	+ 70	+ 150	+ 70	+ 60	- 80
G + Y	3	30	**2 690**	- 20	+ 60	N/A	+ 110	+ 210	+ 90	+ 130	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**1 530**	- 10	+ 60	+ 100	+ 60	+ 160	+ 60	+ 40	- 50

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 810**	- 20	+ 60	+ 140	+ 100	+ 250	+ 90	+ 90	- 90
	3	6	**2 010**	- 20	+ 60	+ 160	+ 120	+ 270	+ 100	+ 100	- 120
B SYS LO PR	FULL	0	**1 660**	- 20	+ 50	+ 130	+ 90	+ 230	+ 80	+ 70	- 60
	3	6	**1 810**	- 20	+ 60	+ 140	+ 100	+ 240	+ 90	+ 80	- 70
Y SYS LO PR	FULL	0	**1 730**	- 20	+ 60	+ 140	+ 100	+ 240	+ 80	+ 80	- 70
	3	6	**1 880**	- 20	+ 60	+ 150	+ 100	+ 250	+ 90	+ 90	- 90
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 730**	- 30	+ 70	N/A	+ 160	+ 320	+ 120	+ 160	- 220
G + Y	3	30	**3 090**	- 30	+ 90	N/A	+ 180	+ 340	+ 140	+ 210	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 100**	- 10	+ 70	+ 170	+ 120	+ 280	+ 100	+ 110	- 150

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**1 920**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 150
B SYS LO PR	FULL	0	**1 880**	- 10	+ 40	+ 100	+ 80	+ 200	+ 60	+ 80	- 100
	3	6	**2 010**	- 20	+ 40	+ 110	+ 80	+ 200	+ 70	+ 90	- 120
Y SYS LO PR	FULL	0	**1 950**	- 20	+ 40	+ 110	+ 80	+ 210	+ 70	+ 90	- 130
	3	6	**2 090**	- 20	+ 40	+ 120	+ 90	+ 210	+ 70	+ 100	- 140
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**2 690**	- 20	+ 50	N/A	+ 110	+ 230	+ 90	+ 140	- 230
G + Y	3	30	**3 020**	- 20	+ 60	N/A	+ 130	+ 250	+ 110	+ 180	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 300**	- 10	+ 40	+ 130	+ 100	+ 230	+ 80	+ 120	- 200

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 150**	- 20	+ 40	+ 120	+ 90	+ 240	+ 70	+ 130	- 170
	3	6	**2 350**	- 20	+ 40	+ 130	+ 100	+ 250	+ 80	+ 140	- 200
B SYS LO PR	FULL	0	**2 100**	- 20	+ 40	+ 120	+ 90	+ 230	+ 80	+ 120	- 140
	3	6	**2 260**	- 20	+ 40	+ 120	+ 90	+ 240	+ 80	+ 130	- 160
Y SYS LO PR	FULL	0	**2 180**	- 20	+ 40	+ 130	+ 90	+ 240	+ 80	+ 130	- 170
	3	6	**2 340**	- 20	+ 40	+ 130	+ 100	+ 250	+ 90	+ 140	- 190
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 020**	- 20	+ 50	N/A	+ 130	+ 270	+ 110	+ 200	- 300
G + Y	3	30	**3 400**	- 30	+ 60	N/A	+ 150	+ 290	+ 120	+ 250	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**2 580**	- 10	+ 50	+ 150	+ 110	+ 260	+ 100	+ 170	- 260

Continued from the previous page

HYDRAULIC SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**2 530**	- 30	+ 80	+ 180	+ 160	+ 420	+ 120	+ 220	- 220
	3	6	**2 850**	- 30	+ 90	+ 230	+ 180	+ 440	+ 170	+ 270	- 280
B SYS LO PR	FULL	0	**2 480**	- 30	+ 80	+ 160	+ 160	+ 410	+ 110	+ 200	- 180
	3	6	**2 710**	- 30	+ 80	+ 190	+ 170	+ 420	+ 130	+ 230	- 210
Y SYS LO PR	FULL	0	**2 580**	- 30	+ 80	+ 200	+ 170	+ 420	+ 130	+ 230	- 220
	3	6	**2 820**	- 30	+ 90	+ 200	+ 180	+ 440	+ 150	+ 270	- 270
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	**3 850**	- 40	+ 110	N/A	+ 250	+ 530	+ 180	+ 420	- 490
G + Y	3	30	**4 380**	- 50	+ 120	N/A	+ 290	+ 560	+ 220	+ 550	INOP
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**3 180**	- 30	+ 100	+ 220	+ 210	+ 490	+ 180	+ 350	- 380

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
G SYS LO PR	FULL	0	**3 860**	- 30	+ 70	+ 180	+ 210	+ 610	+ 160	+ 950	- 550
	3	6	**4 310**	- 40	+ 80	+ 200	+ 240	+ 640	+ 180	+ 1 110	- 680
B SYS LO PR	FULL	0	**3 780**	- 30	+ 70	+ 180	+ 200	+ 600	+ 160	+ 910	- 520
	3	6	**4 060**	- 40	+ 80	+ 180	+ 220	+ 610	+ 170	+ 980	- 570
Y SYS LO PR	FULL	0	**3 950**	- 30	+ 80	+ 190	+ 220	+ 610	+ 170	+ 990	- 430
	3	6	**4 230**	- 40	+ 80	+ 190	+ 230	+ 630	+ 170	+ 1 070	- 490
G + B *REF DIST calculated with 140kt min*	3	25 / 140kt	Landing Distance greater than 6 000 m for all conditions								
G + Y	3	30	Landing Distance greater than 6 000 m for all conditions								
B + Y *REF DIST calculated with 140kt min*	3	10 / 140kt	**4 700**	- 30	+ 90	+ 220	+ 260	+ 670	+ 200	+ 1 250	- 670

Intentionally left blank

1

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

Continued from the previous page

ANTI ICE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
WING ANTI ICE SYS FAULT (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 750**	- 20	+ 60	+ 100	+ 70	+ 190	+ 60	+ 70	- 60
	3	6	**1 880**	- 20	+ 70	+ 100	+ 70	+ 190	+ 70	+ 80	- 70
AUTO BRK FAULT	FULL	0	**1 320**	- 10	+ 50	+ 80	+ 50	+ 140	+ 40	+ 30	- 30
	3	6	**1 410**	- 10	+ 50	+ 80	+ 60	+ 150	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 800**	- 20	+ 60	+ 110	+ 80	+ 230	+ 70	+ 80	- 60
	3	6	**1 940**	- 20	+ 60	+ 120	+ 90	+ 240	+ 80	+ 90	- 70
AUTO BRK FAULT	FULL	0	**1 680**	- 20	+ 50	+ 120	+ 90	+ 230	+ 70	+ 70	- 60
	3	6	**1 840**	- 20	+ 50	+ 120	+ 100	+ 250	+ 80	+ 70	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 790**	- 10	+ 60	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 70	+ 100	+ 80	+ 200	+ 70	+ 80	- 100
AUTO BRK FAULT	FULL	0	**1 790**	- 10	+ 30	+ 90	+ 70	+ 190	+ 60	+ 70	- 90
	3	6	**1 920**	- 10	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 100

Continued from the previous page

BRAKE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 230	+ 60	+ 100	- 120
	3	6	**2 140**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 140
AUTO BRK FAULT	FULL	0	**1 990**	- 20	+ 40	+ 100	+ 80	+ 220	+ 70	+ 100	- 120
	3	6	**2 150**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 380	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 180
AUTO BRK FAULT	FULL	0	**2 310**	- 30	+ 70	+ 170	+ 140	+ 370	+ 100	+ 170	- 150
	3	6	**2 540**	- 30	+ 70	+ 170	+ 150	+ 390	+ 120	+ 200	- 190

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
ANTISKID FAULT	FULL	0	**3 510**	- 30	+ 70	+ 160	+ 180	+ 570	+ 150	+ 780	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 150	+ 860	- 510
AUTO BRK FAULT	FULL	0	**3 520**	- 30	+ 70	+ 150	+ 180	+ 570	+ 140	+ 790	- 450
	3	6	**3 810**	- 30	+ 70	+ 160	+ 200	+ 590	+ 160	+ 860	- 510

1

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 380**	- 10	+ 50	+ 90	+ 70	+ 160	+ 50	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 160	+ 90	+ 220	+ 90	+ 10	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 800**	- 20	+ 50	+ 120	+ 100	+ 230	+ 80	+ 60	- 60

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
IR 1+2+3 FAULT	3	10	**2 380**	- 20	+ 50	+ 170	+ 90	+ 220	+ 90	+ 30	- 10
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**1 990**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

NAVIGATION SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 450**	- 20	+ 50	+ 160	+ 100	+ 250	+ 90	+ 70	- 30
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 220**	- 20	+ 40	+ 100	+ 90	+ 240	+ 80	+ 110	- 150

MEDIUM TO POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 170	+ 160	+ 400	+ 130	+ 190	- 50
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**2 650**	- 30	+ 80	+ 160	+ 160	+ 400	+ 130	+ 190	- 190

POOR

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	**FLAPS LEVER for LDG**	**ΔVREF**	**REF DIST (m) for 78T**	**Per 1T BELOW 78T**	**Per 1T ABOVE 78T**	**Per 5kt**	**Per 1000ft above SL**	**Per 5kt TW**	**Per 10°C ABOVE ISA**	**Per 1% Down Slope**	**Per Thrust Reverser Operative**
IR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 160	+ 200	+ 600	+ 160	+ 870	- 460
UNRELIABLE SPEED INDICATION/ ADR CHECK PROC	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530
DUAL IR FAULT/ DUAL ADR FAULT/ ADR 1+2+3 FAULT	3	10	**3 910**	- 30	+ 70	+ 150	+ 210	+ 600	+ 160	+ 870	- 510

1

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 360**	- 10	+ 50	+ 90	+ 60	+ 160	+ 60	+ 30	- 20
	3	16	**1 460**	- 10	+ 50	+ 90	+ 70	+ 170	+ 50	+ 30	- 30

GOOD											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 750**	- 20	+ 50	+ 120	+ 90	+ 220	+ 80	+ 60	- 60
	3	16	**1 910**	- 20	+ 60	+ 120	+ 100	+ 230	+ 80	+ 70	- 70

GOOD TO MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**1 940**	- 10	+ 40	+ 90	+ 80	+ 200	+ 70	+ 80	- 100
	3	16	**2 080**	- 20	+ 40	+ 100	+ 80	+ 200	+ 70	+ 80	- 110

Continued from the previous page

BLEED SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 160**	- 20	+ 40	+ 100	+ 90	+ 230	+ 70	+ 110	- 140
	3	16	**2 320**	- 20	+ 40	+ 100	+ 100	+ 230	+ 80	+ 120	- 150

MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**2 540**	- 30	+ 70	+ 150	+ 150	+ 380	+ 130	+ 180	- 170
	3	16	**2 790**	- 30	+ 80	+ 170	+ 170	+ 390	+ 130	+ 200	- 210

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
DUAL BLEED SYSTEM FAULT/ WING or ENG BLEED SYSTEM LEAK/ X BLEED SYSTEM FAULT/ ENG BLEED SYSTEM LO TEMP (if Ice Accretion)	FULL	10	**3 740**	- 30	+ 70	+ 150	+ 190	+ 580	+ 160	+ 790	- 470
	3	16	**4 050**	- 30	+ 70	+ 150	+ 210	+ 590	+ 160	+ 860	- 530

1

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

DRY

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**1 890**	- 20	+ 60	N/A	+ 80	+ 170	+ 70	+ 40	- 40
	3	10	**1 370**	- 10	+ 50	+ 90	+ 60	+ 160	+ 50	+ 30	- 30
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 350**	- 10	+ 50	+ 90	+ 60	+ 150	+ 60	+ 30	- 30
	3	16	**1 450**	- 10	+ 50	+ 90	+ 70	+ 160	+ 60	+ 30	- 30

GOOD

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 480**	- 20	+ 70	N/A	+ 130	+ 260	+ 110	+ 90	- 130
	3	10	**1 780**	- 20	+ 50	+ 120	+ 90	+ 230	+ 80	+ 70	- 70
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 740**	- 20	+ 50	+ 110	+ 90	+ 220	+ 80	+ 60	- 70
	3	16	**1 900**	- 20	+ 60	+ 110	+ 100	+ 230	+ 80	+ 60	- 80

GOOD TO MEDIUM

Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 560**	- 20	+ 40	N/A	+ 100	+ 210	+ 80	+ 100	- 170
	3	10	**1 960**	- 10	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 120
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**1 920**	- 10	+ 40	+ 90	+ 80	+ 190	+ 60	+ 70	- 110
	3	16	**2 060**	- 20	+ 40	+ 100	+ 80	+ 190	+ 70	+ 80	- 130

Continued from the previous page

ENGINE SYSTEM

The Reference Distance (REF DIST) considers : Sea Level (SL), ISA, no wind, no slope, no engine reverse thrust, manual landing, VAPP = VREF+ΔVREF without APPR COR.

MEDIUM											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**2 860**	- 20	+ 50	N/A	+ 110	+ 240	+ 100	+ 140	- 230
	3	10	**2 190**	- 20	+ 40	+ 110	+ 90	+ 230	+ 80	+ 110	- 160
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 130**	- 20	+ 40	+ 100	+ 80	+ 220	+ 80	+ 100	- 150
	3	16	**2 290**	- 20	+ 40	+ 110	+ 90	+ 220	+ 80	+ 110	- 170

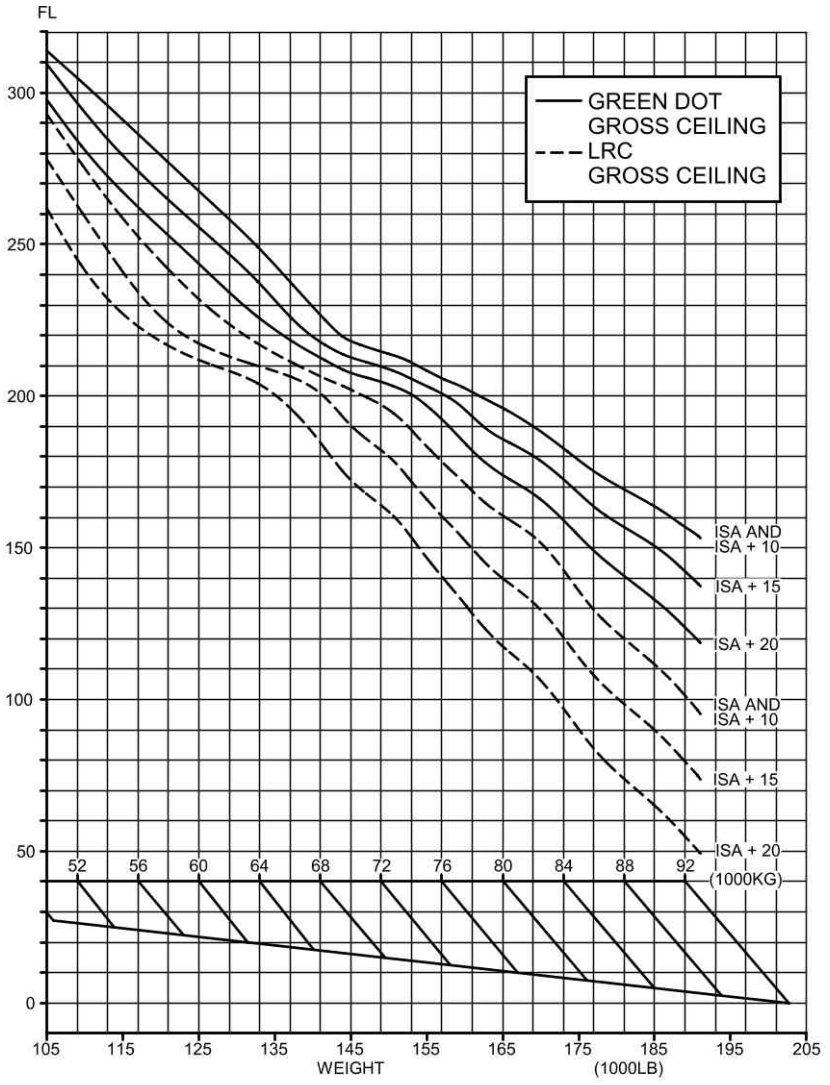
MEDIUM TO POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**3 690**	- 40	+ 90	N/A	+ 210	+ 450	+ 170	+ 280	- 400
	3	10	**2 600**	- 30	+ 70	+ 160	+ 150	+ 380	+ 140	+ 200	- 220
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**2 510**	- 30	+ 70	+ 160	+ 140	+ 360	+ 130	+ 170	- 200
	3	16	**2 770**	- 30	+ 80	+ 140	+ 160	+ 390	+ 120	+ 190	- 250

POOR											
Corrections on Landing Distance (m)				WEIGHT		SPD	ALT	WIND	TEMP	SLOPE	REV
FAILURE	FLAPS LEVER for LDG	ΔVREF	REF DIST (m) for 78T	Per 1T BELOW 78T	Per 1T ABOVE 78T	Per 5kt	Per 1000ft above SL	Per 5kt TW	Per 10°C ABOVE ISA	Per 1% Down Slope	Per Thrust Reverser Operative
REV UNLOCK (with buffet)	1	40	**5 030**	- 50	+ 90	N/A	+ 230	+ 580	+ 190	+ 910	- 860
	3	10	**3 790**	- 40	+ 80	+ 160	+ 180	+ 530	+ 150	+ 720	- 600
SHUTDOWN (if ENG FIRE pushbutton pushed and if Ice Accretion)	FULL	10	**3 630**	- 30	+ 80	+ 150	+ 170	+ 520	+ 150	+ 650	- 540
	3	16	**3 940**	- 40	+ 80	+ 150	+ 180	+ 530	+ 150	+ 720	- 620

CEILINGS

ONE ENGINE OUT

GROSS CEILING at LONG RANGE and GREEN DOT SPEEDS Pack Flow Hi - Anti ice OFF



CORRECTIONS		ISA	ISA + 10	ISA + 15	ISA + 20
LONG RANGE	ENGINE ANTI ICE ON	-1 300 ft	-1 300 ft	-1 400 ft	-1 400 ft
	TOTAL ANTI ICE ON	-2 800 ft	-2 800 ft	-2 800 ft	-3 000 ft
GREEN DOT	ENGINE ANTI ICE ON	-1 000 ft	-1 000 ft	-1 100 ft	-1 200 ft
	TOTAL ANTI ICE ON	-2 100 ft	-2 100 ft	-2 300 ft	-2 500 ft

Note: For weights 85 000 kg or 187 400 lb, one engine ceilings at Long Range speed may be overestimated by FMS Legacy. In this case, ceiling values provided in the above graph should be retained.

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED

ONE ENGINE OUT

GROSS FLIGHT PATH DESCENT AT GREEN DOT SPEED - 1 ENGINE OUT

MAX. CONTINUOUS THRUST
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG=33.0%

DISTANCE (NM) TIME (MIN)
INITIAL SPEED (KT) FUEL(1000KG)
LEVEL OFF (FT)

INIT. GW (1000KG)	INITIAL FLIGHT LEVEL 250	290	310	330	350	370	390
50				174 32 198 .9 31700	228 42 200 1.1 31800	262 47 202 1.3 31900	288 52 204 1.3 31900
54			156 29 202 .9 30100	222 41 204 1.2 30200	258 47 206 1.4 30300	285 52 208 1.5 30300	308 55 210 1.5 30400
58		152 29 206 .9 28200	231 43 208 1.3 28500	269 50 210 1.5 28600	298 54 212 1.7 28600	320 58 214 1.7 28700	339 61 216 1.8 28700
62		236 45 212 1.5 26400	279 52 214 1.7 26600	309 57 216 1.8 26600	333 61 218 1.9 26700	352 64 220 2.0 26700	369 67 222 2.1 26800
66	155 30 214 1.1 24200	281 53 218 1.8 24600	314 59 220 2.0 24600	339 63 222 2.1 24700	360 67 224 2.2 24700	378 69 226 2.3 24800	393 71 228 2.3 24800
70	231 45 220 1.7 22600	311 59 224 2.1 22800	335 63 226 2.2 22800	357 67 228 2.3 22900	376 70 230 2.4 22900	392 72 232 2.5 22900	406 74 234 2.5 23000
74	214 41 226 1.6 21300	278 53 230 2.0 21400	301 56 232 2.1 21400	321 60 234 2.2 21500	339 62 236 2.2 21500	354 65 238 2.3 21500	
78	212 40 232 1.6 20500	264 49 236 1.9 20600	283 52 238 2.0 20600	301 55 240 2.1 20600	316 57 242 2.2 20600	330 60 244 2.2 20600	
82	242 46 238 1.9 19600	282 52 242 2.1 19700	298 55 244 2.2 19700	313 57 246 2.3 19700	326 59 248 2.3 19800		
86	278 52 244 2.3 18400	317 58 248 2.5 18400	332 61 250 2.6 18500	346 63 252 2.6 18500	359 65 254 2.7 18500		
90	300 56 250 2.6 17100	335 61 254 2.7 17200	349 64 256 2.8 17200	363 66 258 2.9 17200			
94	317 59 256 2.8 15900	350 64 260 3.0 15900	363 66 262 3.0 16000	375 67 264 3.1 16000			

CORRECTIONS	DISTANCE	TIME	FUEL	LEVEL OFF
ENGINE ANTI ICE ON	+ 15 %	+ 12 %	+ 18 %	- 200 FT
TOTAL ANTI ICE ON	+ 20 %	+ 24 %	+ 33 %	- 700 FT

CRUISE AT LONG RANGE CRUISE SPEED

ONE ENGINE OUT

LONG RANGE CRUISE - 1 ENGINE OUT						
MAX. CONTINUOUS THRUST LIMITS NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%	EPR FUEL FLOW (KG/H)		MACH IAS (KT)
WEIGHT (1000KG)	FL100	FL150	FL190	FL210	FL230	FL250
50	1.181 .442 1972 244	1.250 .480 1915 241	1.319 .507 1856 236	1.369 .530 1874 237	1.417 .549 1870 236	1.472 .571 1875 236
54	1.199 .454 2093 251	1.281 .494 2047 249	1.363 .529 2029 246	1.411 .548 2028 246	1.464 .569 2032 245	1.520 .588 2034 243
58	1.223 .466 2224 258	1.310 .506 2174 255	1.402 .546 2185 255	1.454 .567 2190 254	1.510 .587 2196 253	1.554 .591 2138 244
62	1.253 .484 2387 268	1.344 .521 2330 263	1.441 .562 2343 262	1.497 .583 2354 262	1.536 .585 2277 252	1.568 .551 2121 227
66	1.278 .495 2519 274	1.380 .538 2499 272	1.480 .578 2504 270	1.534 .595 2503 267	1.548 .548 2252 235	
70	1.303 .506 2651 280	1.412 .552 2651 278	1.517 .591 2667 277	1.547 .578 2519 260		
74	1.327 .515 2785 286	1.446 .567 2818 286	1.549 .600 2811 281	1.562 .528 2482 236		
78	1.359 .531 2968 295	1.478 .579 2979 293	1.557 .577 2795 270			
82	1.385 .543 3124 301	1.510 .592 3146 299	1.574 .523 2758 243			
86	1.412 .554 3282 308	1.519 .580 3163 293				
90	1.440 .567 3449 315	1.529 .559 3158 282				
94	1.456 .569 3540 316	1.549 .512 3139 258				
ENGINE ANTI ICE ON △FUEL = + 2 %				TOTAL ANTI ICE ON △FUEL = + 4 %		

IN CRUISE QUICK CHECK LONG RANGE

ONE ENGINE OUT

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING - 1 ENGINE OUT
CRUISE : LONG RANGE - DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	220	240	250	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL220	FL240 FL250
200	1510 0.46	1317 0.44	1180 0.42	1131 0.41	1083 0.41	1061 0.41	9	7	6
300	2259 1.06	2008 1.03	1826 0.59	1762 0.58	1699 0.57	1670 0.58	15	14	13
400	3004 1.27	2694 1.22	2468 1.17	2388 1.15	2312 1.14	2276 1.15	21	20	20
500	3745 1.47	3377 1.41	3106 1.34	3010 1.32	2921 1.31	2877 1.32	27	27	27
600	4481 2.08	4055 2.00	3739 1.52	3628 1.49	3527 1.48	3475 1.49	34	34	34
700	5212 2.28	4729 2.19	4369 2.10	4241 2.07	4129 2.04	4069 2.05	40	40	41
800	5938 2.49	5400 2.39	4994 2.28	4851 2.24	4727 2.21	4659 2.22	46	47	48
900	6659 3.10	6066 2.58	5615 2.46	5456 2.41	5320 2.38	5247 2.38	52	53	54
1000	7376 3.31	6728 3.17	6232 3.04	6058 2.59	5907 2.55	5831 2.55	58	60	61
1100	8088 3.52	7387 3.37	6845 3.22	6656 3.16	6490 3.12	6413 3.11	63	66	68
1200	8798 4.13	8042 3.56	7454 3.41	7250 3.34	7070 3.29	6991 3.28	69	73	74
1300	9506 4.34	8693 4.16	8059 3.59	7840 3.52	7645 3.46	7566 3.44	75	79	81
1400	10209 4.55	9340 4.36	8661 4.17	8427 4.10	8217 4.03	8137 4.00	81	86	87

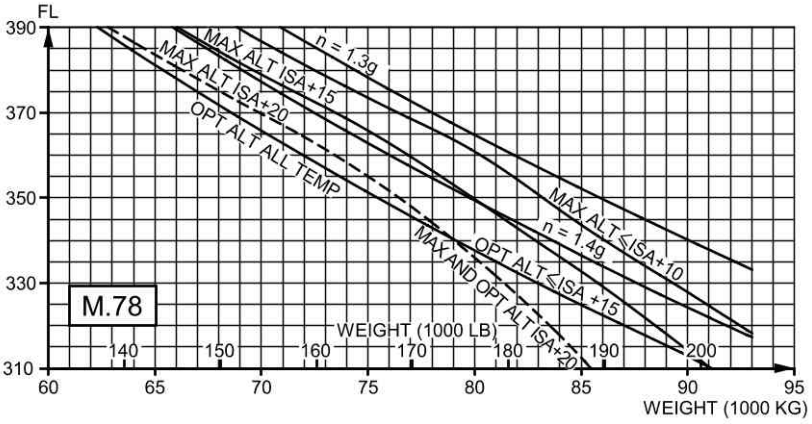
ENGINE ANTI ICE ON
△FUEL = + 2 %

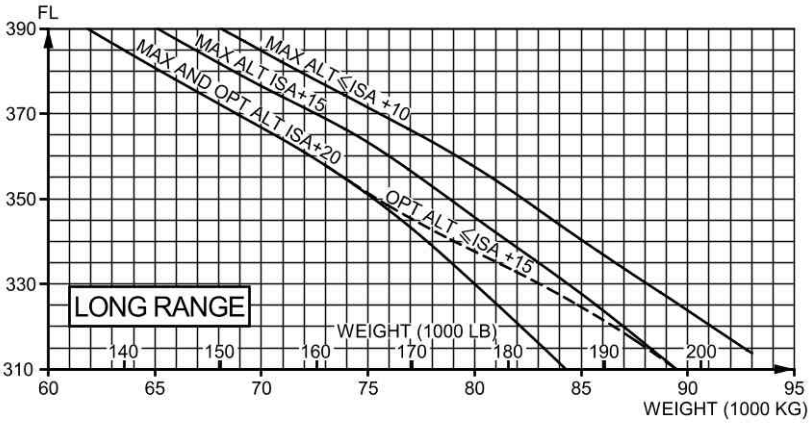
TOTAL ANTI ICE ON
△FUEL = + 4 %

FLIP23 A321-131 IAE V2530-A5 3610 03301.001011 0250300 .7801 .000100 140 0300350 60 0 100100 40100 18590 CL-N0-04-07-150

OPTIMUM & MAXIMUM ALTITUDES

ALL ENGINES





CORRECTIONS	ENGINE ANTI ICE	TOTAL ANTI ICE
≤ISA +10	Max ALT : - 500 ft Opt ALT :- 300 ft	Max ALT : -1 100 ft Opt ALT : - 300 ft
ISA +15	Max ALT : - 700 ft Opt ALT : - 300 ft	Max ALT : -1 500 ft Opt ALT : - 600 ft
ISA +20	Max ALT : -1 000 ft Opt ALT : -1 000 ft	Max ALT : -2 300 ft Opt ALT : -2 300 ft

IN CRUISE QUICK CHECK AT A GIVEN MACH NUMBER

ALL ENGINES

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING

CRUISE : M.78 – DESCENT : M.78/300KT/250KT - IMC PROCEDURE : 140 KG (6MIN)

REF. INITIAL WEIGHT = 65000 KG NORMAL AIR CONDITIONING ANTI-ICING OFF	ISA CG = 33.0 %	**FUEL CONSUMED (KG)** **TIME (H.MIN)**

AIR DIST. (NM)	FLIGHT LEVEL 290	310	330	350	370	390	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL290 FL310	FL330 FL350	FL370 FL390
200	1037 0.36	978 0.36	926 0.36	880 0.36	842 0.36	816 0.36	1	2	4
400	2281 1.02	2158 1.02	2049 1.02	1956 1.03	1885 1.03	1854 1.03	7	10	20
600	3518 1.27	3329 1.28	3164 1.29	3023 1.29	2918 1.30	2875 1.30	13	18	33
800	4747 1.53	4494 1.54	4271 1.55	4081 1.56	3939 1.56	3882 1.56	19	25	45
1000	5970 2.19	5650 2.20	5370 2.22	5131 2.23	4951 2.23	4874 2.23	25	33	57
1200	7185 2.45	6799 2.47	6461 2.48	6171 2.49	5952 2.50	5852 2.50	31	40	67
1400	8393 3.11	7941 3.13	7544 3.14	7204 3.16	6944 3.17	6816 3.17	36	47	77
1600	9596 3.37	9076 3.39	8620 3.41	8228 3.43	7925 3.44	7768 3.44	41	54	86
1800	10792 4.03	10205 4.05	9689 4.07	9244 4.09	8898 4.10	8707 4.10	46	60	94
2000	11983 4.29	11327 4.31	10751 4.34	10254 4.36	9865 4.37	9640 4.37	51	66	102
2200	13167 4.55	12442 4.58	11806 5.00	11256 5.03	10825 5.04	10566 5.04	56	73	110
2400	14345 5.21	13551 5.24	12855 5.26	12251 5.29	11776 5.31	11482 5.31	61	79	117
2600	15518 5.47	14654 5.50	13897 5.53	13239 5.56	12720 5.58	12388 5.58	65	85	125
2800	16685 6.13	15750 6.16	14932 6.19	14220 6.23	13657 6.24	13286 6.24	68	90	131
3000	17851 6.39	16841 6.42	15961 6.46	15195 6.49	14586 6.51	14175 6.51	72	96	138

ECON AIR CONDITIONING	**ENGINE ANTI ICE ON**	**TOTAL ANTI ICE ON**
△FUEL = – 0.6 %	△FUEL = + 2 %	△FUEL = + 5 %

FLIP22B A321-131 IAE V2530-A5&610 03301.300211 0250300 .7800 .000200 140 0300350 65 0 100100 40100 18590 CL-N0-CL-004-009-150

COST INDEX FOR LONG RANGE CRUISE SPEED

ALL ENGINES

For a quick determination of the CI_{LRC}, use:

- CI_{LRC} = 50 kg/min in the FMGC.

  or
- CI_{LRC} = 70 (100 lb/h) in the FMGC.

STANDARD DESCENT

ALL ENGINES

DESCENT - M.78/300KT/250KT									
IDLE THRUST NORMAL AIR CONDITIONING ANTI-ICING OFF			ISA CG=33.0%		MAXIMUM CABIN RATE OF DESCENT 350FT/MIN				
WEIGHT (1000KG)	60				80				
FL	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	TIME (MIN)	FUEL (KG)	DIST. (NM)	EPR	IAS (KT)
390	16.7	173	100	IDLE					241
370	15.9	166	95	IDLE	18.0	186	108	IDLE	252
350	15.2	159	90	IDLE	17.3	179	103	IDLE	264
330	14.6	153	85	IDLE	16.6	173	98	IDLE	277
310	14.0	148	81	IDLE	16.0	167	93	IDLE	289
290	13.5	143	76	IDLE	15.3	161	88	IDLE	300
270	12.8	137	71	IDLE	14.5	154	81	IDLE	300
250	12.1	131	66	IDLE	13.6	146	75	IDLE	300
240	11.7	127	63	IDLE	13.2	143	72	IDLE	300
220	11.0	121	58	IDLE	12.3	135	66	IDLE	300
200	10.2	114	53	IDLE	11.5	127	60	IDLE	300
180	9.5	108	48	IDLE	10.5	119	54	IDLE	300
160	8.7	100	43	IDLE	9.6	110	48	IDLE	300
140	7.9	93	39	IDLE	8.7	101	42	IDLE	300
120	7.1	85	34	IDLE	7.7	92	37	IDLE	300
100	6.3	76	29	IDLE	6.7	81	31	IDLE	300
50	2.4	30	10	IDLE	2.5	32	11	IDLE	250
15	.0	0	0	IDLE	.0	0	0	IDLE	250

CORRECTIONS	ECON AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON	PER 1° ABOVE ISA
TIME	–	+ 1 min	+ 3 min	+ 0.2 %
FUEL	– 2 %	+ 17 %	+ 90 %	+ 0.7 %
DISTANCE	–	+ 4 %	+ 20 %	+ 0.4 %

10B-08FA321-131IAEV2530-A523100000C5KG330001859000-1-350.015.0.00003.780300.000250.0000 FCOM-N0-03-05-30-002-150

QUICK DETERMINATION TABLE OF ALTERNATE FLIGHT PLANNING

ALL ENGINES

ALTERNATE PLANNING FROM DESTINATION TO ALTERNATE AIRPORT
GO-AROUND : 120 KG - CLIMB : 250KT/300KT/M.78 - CRUISE : LONG RANGE
DESCENT : M.78/300KT/250KT - VMC PROCEDURE : 100 KG (4MIN)

REF. LDG WT AT DEST. = 60000 KG
NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 33.0 %

FUEL CONSUMED (KG)

TIME (H.MIN)

AIR DIST. (NM)	FLIGHT LEVEL 100	150	200	250	290	330	CORRECTION ON FUEL CONSUMPTION (KG/1000KG) FL100 FL150	FL200 FL250	FL290 FL330
40	601 0.12						2		
60	775 0.16						4		
80	950 0.20	898 0.19					5		
100	1124 0.23	1056 0.23	1035 0.22				6	6	
120	1299 0.27	1213 0.26	1172 0.26	1172 0.25			7	7	
140	1474 0.31	1371 0.30	1310 0.29	1294 0.28			8	8	
160	1649 0.35	1529 0.33	1447 0.32	1416 0.31	1423 0.31		9	8	10
180	1825 0.39	1687 0.37	1585 0.35	1539 0.35	1536 0.34	1547 0.33	10	9	12
200	2000 0.43	1845 0.40	1723 0.38	1662 0.38	1650 0.36	1654 0.36	11	10	13
220	2176 0.46	2003 0.44	1860 0.42	1784 0.41	1763 0.39	1761 0.39	12	10	14
240	2352 0.50	2161 0.47	1998 0.45	1907 0.44	1877 0.42	1869 0.41	13	11	15
260	2529 0.54	2320 0.50	2136 0.48	2030 0.47	1991 0.45	1976 0.44	15	12	16
280	2705 0.58	2479 0.54	2274 0.51	2153 0.50	2105 0.48	2084 0.47	16	13	17
300	2882 1.02	2638 0.57	2413 0.54	2277 0.53	2220 0.51	2192 0.50	17	13	18
320	3059 1.05	2797 1.01	2551 0.58	2400 0.57	2334 0.54	2300 0.53	18	14	20
340	3236 1.09	2956 1.04	2689 1.01	2524 1.00	2449 0.57	2408 0.55	19	15	21
360	3414 1.13	3115 1.07	2828 1.04	2647 1.03	2563 1.00	2516 0.58	20	16	22
380	3591 1.17	3275 1.11	2966 1.07	2771 1.06	2678 1.03	2625 1.01	21	16	23
400	3769 1.21	3435 1.14	3105 1.10	2895 1.09	2793 1.06	2733 1.04	22	17	24
420	3947 1.24	3594 1.18	3243 1.14	3019 1.12	2908 1.09	2842 1.06	23	18	25
440	4125 1.28	3754 1.21	3382 1.17	3143 1.15	3023 1.12	2951 1.09	25	19	26
460	4304 1.32	3915 1.24	3521 1.20	3267 1.18	3138 1.15	3060 1.12	26	20	27
480	4482 1.35	4075 1.28	3660 1.23	3392 1.21	3253 1.18	3169 1.15	27	20	28
500	4661 1.39	4235 1.31	3799 1.26	3516 1.25	3369 1.21	3278 1.18	28	21	30

LOW AIR CONDITIONING	ENGINE ANTI ICE ON	TOTAL ANTI ICE ON
△FUEL = - 1 %	△FUEL = + 4 %	△FUEL = + 6 %

CL-N0-04-13-155

IN CRUISE QUICK CHECK FL 100 LONG RANGE

FLIGHT WITHOUT CAB PRESS

IN CRUISE QUICK CHECK FROM ANY MOMENT IN CRUISE TO LANDING
CRUISE : LONG RANGE - DESCENT : 250KT
IMC PROCEDURE : 140 KG (6MIN)

FL100

NORMAL AIR CONDITIONING
ANTI-ICING OFF

ISA
CG = 25.0%

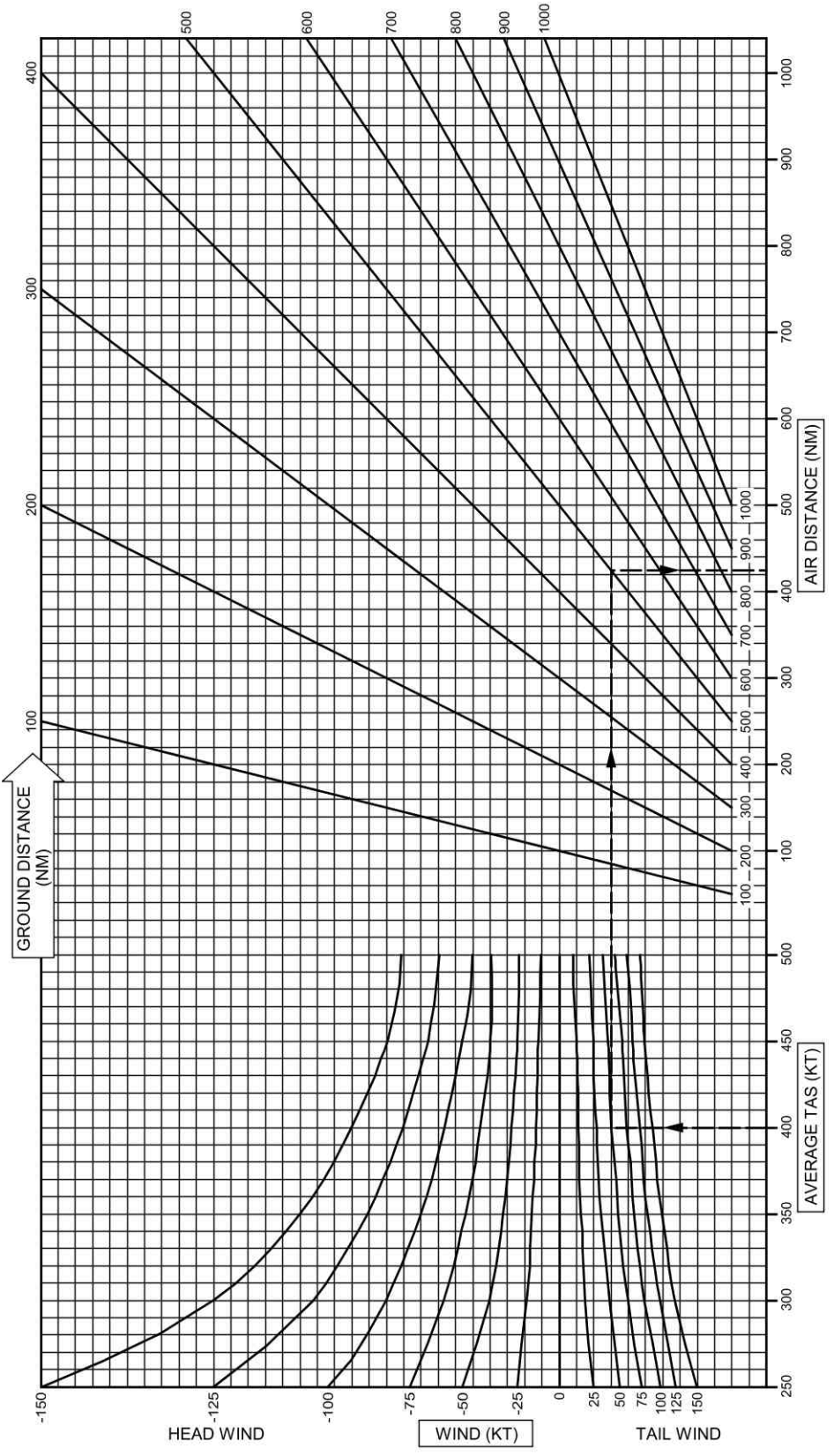
FUEL CONSUMED (KG)
TIME (H.MIN)

AIR DIST. (NM)	INITIAL WEIGHT (1000KG)						
	65	70	75	80	85	90	95
40	337 0.15	339 0.15	342 0.15	347 0.15	353 0.15	361 0.15	370 0.15
60	515 0.18	523 0.18	531 0.18	540 0.18	551 0.18	561 0.18	571 0.18
80	693 0.22	706 0.22	719 0.21	733 0.21	748 0.21	761 0.21	773 0.21
100	871 0.26	890 0.25	908 0.25	926 0.24	945 0.24	960 0.24	975 0.24
120	1048 0.30	1073 0.29	1096 0.28	1119 0.28	1141 0.27	1160 0.27	1176 0.27
140	1226 0.33	1256 0.32	1284 0.31	1312 0.31	1338 0.30	1359 0.30	1378 0.30
160	1403 0.37	1438 0.36	1472 0.35	1504 0.34	1534 0.33	1559 0.33	1580 0.33
180	1580 0.41	1621 0.39	1659 0.38	1696 0.37	1731 0.36	1758 0.36	1782 0.36
200	1757 0.45	1803 0.43	1846 0.42	1888 0.41	1927 0.39	1957 0.39	1984 0.39
220	1933 0.48	1985 0.46	2034 0.45	2080 0.44	2123 0.43	2156 0.42	2185 0.42
240	2110 0.52	2167 0.50	2221 0.48	2271 0.47	2319 0.46	2355 0.45	2387 0.45
260	2286 0.56	2349 0.53	2407 0.52	2463 0.51	2515 0.49	2554 0.48	2589 0.48
280	2462 1.00	2530 0.57	2594 0.55	2654 0.54	2710 0.52	2753 0.51	2791 0.51
300	2637 1.04	2711 1.00	2780 0.58	2845 0.57	2906 0.55	2952 0.54	2993 0.54
320	2813 1.07	2892 1.04	2967 1.02	3036 1.00	3101 0.59	3150 0.57	3195 0.57
340	2988 1.11	3073 1.07	3153 1.05	3227 1.04	3296 1.02	3349 1.00	3397 1.00
360	3164 1.15	3254 1.11	3339 1.09	3417 1.07	3491 1.05	3547 1.03	3599 1.03
380	3339 1.19	3434 1.15	3524 1.12	3608 1.10	3686 1.08	3745 1.05	3800 1.05
400	3513 1.23	3615 1.18	3710 1.15	3798 1.14	3881 1.12	3943 1.08	4001 1.08
420	3688 1.26	3795 1.22	3895 1.19	3988 1.17	4076 1.15	4141 1.11	4202 1.11
440	3862 1.30	3975 1.25	4080 1.22	4177 1.20	4270 1.18	4339 1.14	4402 1.14
460	4037 1.34	4154 1.29	4265 1.26	4367 1.24	4465 1.22	4537 1.17	4603 1.17
480	4211 1.38	4334 1.33	4450 1.29	4557 1.27	4659 1.25	4735 1.20	4803 1.20
500	4384 1.42	4513 1.36	4635 1.33	4746 1.30	4853 1.28	4932 1.23	5003 1.23
520	4558 1.46	4692 1.40	4819 1.36	4935 1.34	5047 1.32	5130 1.26	5203 1.26
540	4732 1.49	4871 1.43	5003 1.40	5124 1.37	5241 1.35	5327 1.29	5403 1.29

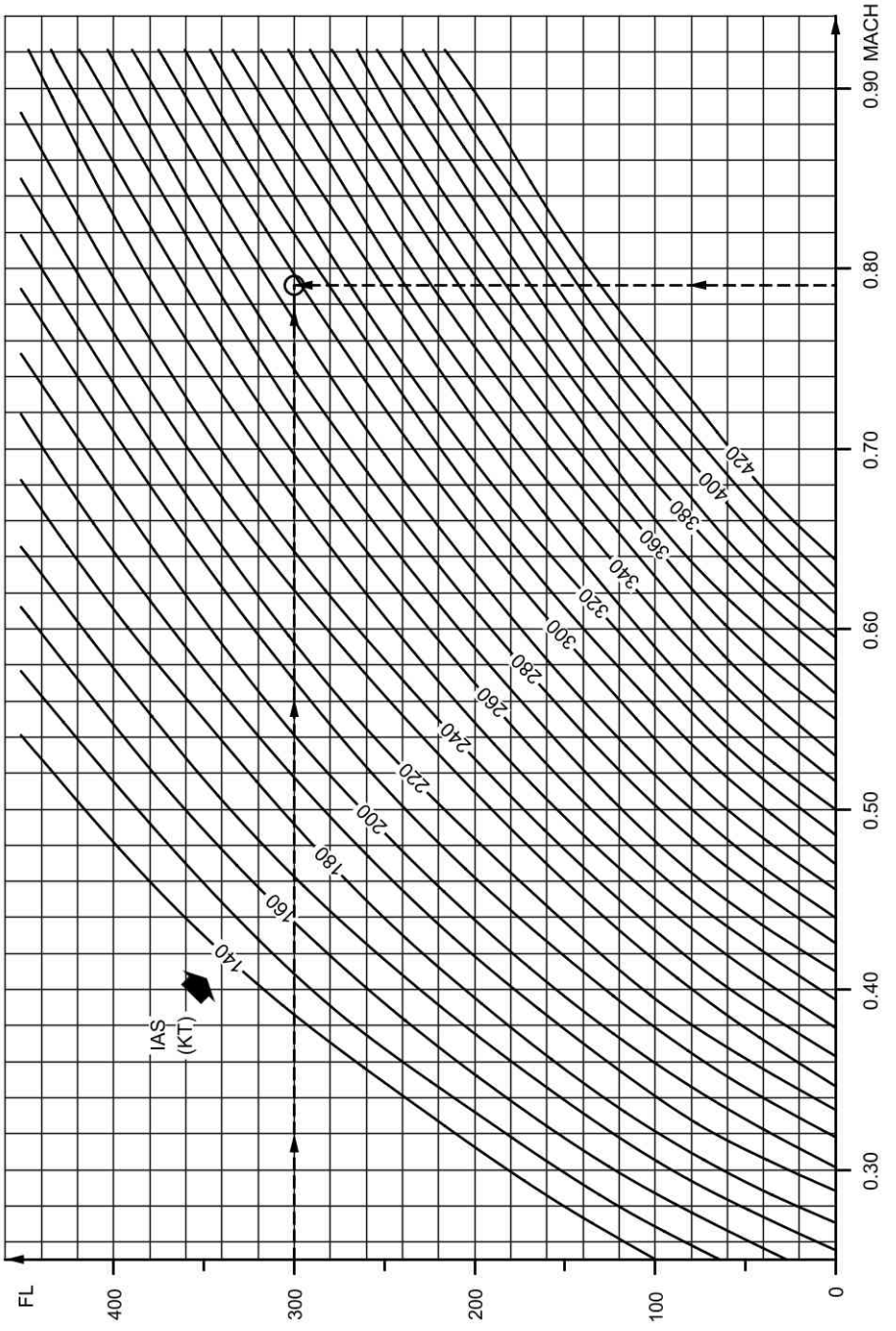
AIR CONDITIONING OFF △FUEL = − 2 %
ENGINE ANTI ICE ON △FUEL = + 3 %
TOTAL ANTI ICE ON △FUEL = + 5 %

Intentionally left blank

GROUND DISTANCE / AIR DISTANCE CONVERSION



IAS / MACH CONVERSION



OPERATIONAL DATA

Intentionally left blank

OPS-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2

SEVERE TURBULENCE..... OPS.01
Hydraulic Architecture..... OPS.02
Flight Controls Architecture..... OPS.03
Required Equipment for CAT2 and CAT3..... OPS.04

Intentionally left blank

SEVERE TURBULENCE

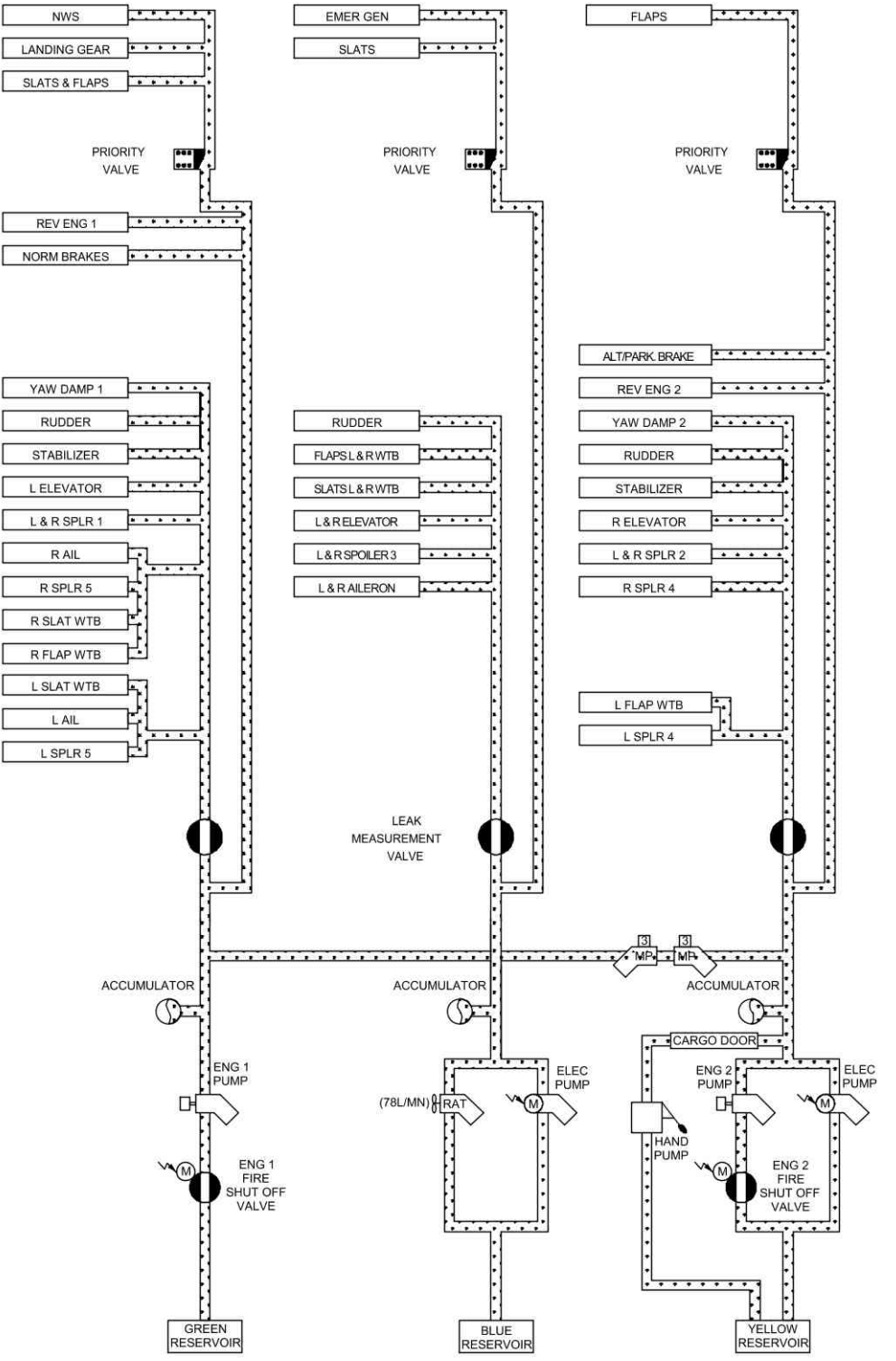
SPEED AND THRUST SETTING FOR RECOMMENDED TURBULENCE SPEED

FL	SPD or Mach	GROSS WEIGHT (1000 kg)										
		54	58	62	66	70	74	78	82	86	90	94
		N1 %										
390	**0.76**	79.4	80.6	-	-	-	-	-	-	-	-	-
370	**0.76**	77.9	78.9	80.0	81.2	-	-	-	-	-	-	-
350	**0.76**	77.2	77.9	78.8	79.7	80.7	-	-	-	-	-	-
330	**0.76**	76.9	77.6	78.2	79.0	79.8	80.7	81.6	-	-	-	-
310	**0.76**	76.7	77.3	77.9	78.5	79.2	79.9	80.6	81.5	82.4	-	-
290	**0.76**	76.7	77.2	77.7	78.2	78.8	79.4	80.0	80.6	81.4	82.1	83.0
270	**300**	76.2	76.6	77.0	77.5	78.0	78.5	79.1	79.6	80.3	80.9	81.6
250	**300**	75.0	75.4	75.8	76.2	76.7	77.1	77.7	78.2	78.9	79.5	80.2
200	**300**	72.2	72.5	72.9	73.3	73.7	74.2	74.7	75.2	75.8	76.4	77.0
150	**270**	65.5	65.9	66.5	67.0	67.7	68.4	69.2	70.3	71.0	71.8	72.6
100	**270**	62.5	62.9	63.5	64.0	64.6	65.3	66.0	66.8	67.6	68.4	69.2
50	**270**	59.1	59.5	60.0	60.5	61.1	61.8	62.6	63.4	64.2	65.0	65.7

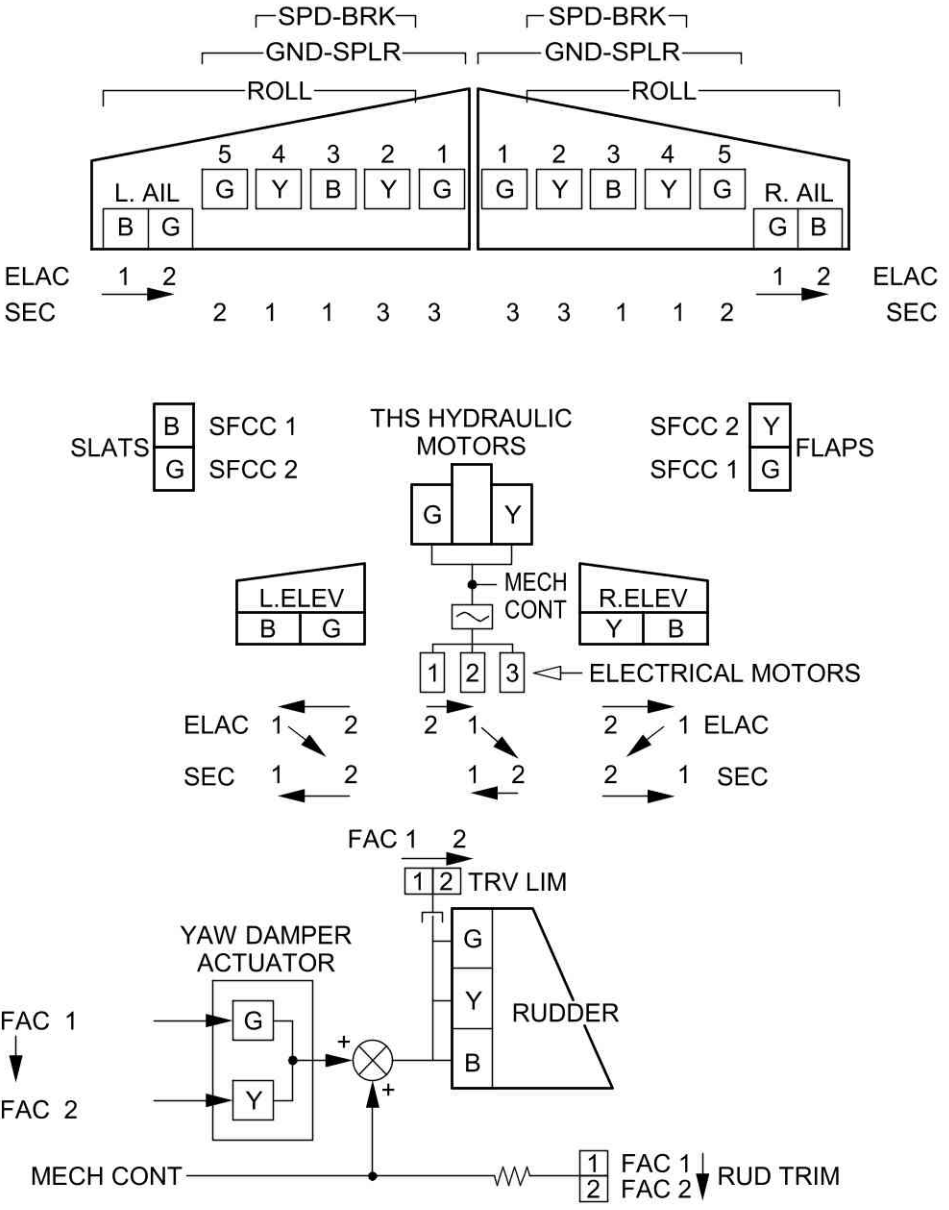
SIGNS.....ON
AUTO PILOT..... KEEP ON
A/THR (when thrust changes become excessive)..... DISCONNECT
DESCENT..... CONSIDER
Consider descending to or below OPT FL in oder to increase the margin to buffet

- **FOR APPROACH:**
  A/THR in managed speed.....USE

HYDRAULIC ARCHITECTURE



FLIGHT CONTROLS ARCHITECTURE



→ Arrows indicate the control reconfiguration priorities

G B Y indicates the hydraulic power source for each servo control

REQUIRED EQUIPMENT FOR CAT2 AND CAT3

	FMA CAPABILITY → / EQUIPMENT ↓	CAT 2	CAT 3 SINGLE	CAT 3 DUAL
FMGS MONITORED FOR FMA LDG CAPABILITY	AP	1 AP ENGAGED	1 AP ENGAGED	2 AP ENGAGED
	AUTOTHRUST	0	1	1
	FMA	1	2	2
	A/THR CAUTION	0	1	1
	ELECTRICAL SUPPLY SPLIT	0	0	1
	FAC	1	1	2
	ELAC	1	1	2
	YAW DAMPER/RUDDER TRIM	1/1	1/1	2/2
	HYDRAULIC CIRCUIT	2	2	3
	PFD	2	2	2
	FLIGHT WARNING COMPUTER	1	1	2
	BSCU CHANNEL	1 *(1)*	1 *(1)*	1
	ANTISKID	1 *(1)*	1 *(1)*	1
	NOSEWHEEL STEERING	1 *(1)*	1 *(1)*	1
	RADIO ALTIMETER	1 (displayed on both sides)	2	2
	ILS RECEIVER	2	2	2
	BEAM EXCESSIVE DEVIATION WARNING	1 for PNF	2	2
	ATTITUDE INDICATION (PFD1/PFD2)	N° 1 + N° 2	N° 1 + N° 2	N° 1 + N° 2
	ADR/IR	2/2	2/2	3/3
NOT FMGS MONITORED FOR FMA LDG CAPABILITY	AP DISCONNECT PB	2	2	2
	"AP OFF" ECAM WARNING	1	1	2
	"AUTOLAND" LIGHT	1	1	1
	RUDDER TRAVEL LIMIT SYSTEM	1 required for autoland with crosswind higher than 12 kt		
	WINDSHIELD HEAT (L or R windshield)	1 for PF		
	WINDSHIELD WIPERS OR RAIN REPELLENT (if activated)	1 for PF		
	ND	1	2	2
	AUTO CALLOUT FUNCTION	one is required for autoland	1	1
	ATTITUDE INDICATION (STBY)	1	1	1
	DH INDICATION	1 for PNF		

(1) For automatic rollout, one is required. For autoland without automatic rollout, none is required.

Note: - *Flight crews are not expected to check the equipment list before approach. When an ECAM or local caution occurs, the crew should use the list to confirm the landing capability.*
- *On ground, the equipment list determines which approach category the aircraft will be able to perform at the next landing.*
- *Electrical power supply split : This ensures that each FMGC is powered by an independent electrical source (AC and DC).*
- *Failure of antiskid and/or nosewheel steering mechanical parts are not monitored for landing capability.*
- *The DH will be displayed on the FMA, and the ˝Hundred Above˝ and ˝Minimum˝ auto callouts will be announced, provided that the DH value has been entered on the MCDU.*

Intentionally left blank

OPERATIONS ENGINEERING BULLETINS

Intentionally left blank

OEBPROC-PLP PRELIMINARY PAGES

TABLE OF CONTENTS..... 1/2
SUMMARY OF HIGHLIGHTS..... 1/2

OEBPROC-11 "ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight

"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.00
"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight.. 11.01

OEBPROC-17 Dual FM Reset upon Radial Fix Info Entry

Dual FM Reset upon Radial Fix Info Entry..... 17.00
Dual FM Reset upon Radial Fix Info Entry..... 17.01

OEBPROC-31 Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches

Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.00
Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches.....31.01

OEBPROC-36 No SRS Engagement During Go Around in the Case of EPR Mode Fault

No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.00
No SRS Engagement During Go Around in the Case of EPR Mode Fault.....36.01

OEBPROC-38 Erroneous Radio Altimeter Height Indication

Erroneous Radio Altimeter Height Indication..... 38.00
Erroneous Radio Altimeter Height Indication..... 38.01

OEBPROC-40 AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.00
AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT.....40.01

OEBPROC-43 F/CTL SPOILER FAULT

F/CTL SPOILER FAULT..... 43.00
F/CTL SPOILER FAULT..... 43.01

OEBPROC-44 L/G GEAR NOT DOWNLOCKED

L/G GEAR NOT DOWNLOCKED..... 44.00
[redacted] L/G GEAR NOT DOWNLOCKED [redacted]..... 44.01

Localization Title	Page	ID	Reason
OEBPROC-43 F/CTL SPOILER FAULT	43.01	1	Documentation update: Deletion of information.

Intentionally left blank

OEB11 Issue 1.0
"ENG 1(2) OIL FILTER CLOG"
ECAM CAUTION DURING FLIGHT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 152.
Engine bearing N°3 failure cases, leading to in-flight shutdowns and, in some cases, accompanied by oil door/smoke in the cabin/cockpit, have been reported on V2500-A5 engines. In a recent case, where a N°3 bearing failure is highly suspected, significant smoke entered the cabin and cockpit, leading the crew to deploy the oxygen masks and divert. In most of these events, an ENG 1(2) OIL FILTER CLOG ECAM caution was displayed prior to the in-flight shutdown.

Applicable to: All A320 family aircraft fitted V2500-A5 engines.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013205.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTI**				
	OEBPROC-11		**"ENG 1(2) OIL FILTER CLOG" ECAM Caution During Flight**	00013213.0001001	30 MAR 12
	Criteria: V2500-A5 **Applicable to: B-HTI**				

"ENG 1(2) OIL FILTER CLOG" ECAM CAUTION DURING FLIGHT

ECAM ENTRY

ENG 1(2) OIL FILTER CLOG

PROCEDURE

Apply the following paper procedure if the ECAM triggers the ENG 1(2) OIL FILTER CLOG ECAM caution:

ENG BLEED (affected side).....OFF

Prevents possible bleed contamination by engine oil.

PACK (affected side).....OFF

Switching OFF one pack enables the remaining pack to operate at 120 %, without any risk of misbehavior on the remaining bleed. Keep the pack on (affected side), in case of an MEL dispatch with the other pack inoperative.

The pack that has been switched off remains available, with the crossbleed valve open. Therefore, switch it on, in case of a subsequent independent malfunction affecting the operating pack.

X BLEED.....OPEN

Opening the crossbleed valve enables the wing anti-ice to be used, when needed.

CLOSELY MONITOR ENGINE PARAMETERS for surge / stall, oil pressure variations, abnormal engine vibrations and, when necessary, apply the associated procedure.

- **If, after the oil filter clog indication, the engine experiences or has already experienced a surge/stall (audible surge detected/undetected by the ECAM) possibly accompanied by a yaw effect on the aircraft:**

  ENG (affected) THRUST LEVER.....IDLE

  Reducing the thrust of the affected engine minimizes further damage to the engine's rotary machinery, but will not necessarily prevent more oil from entering the gas path.

  Maintain engine at idle, and consider engine shutdown, when high vibration occurs, or oil quantity/oil pressure drops low.

Note: *ENG 1(2) OIL FILTER CLOG ECAM caution occurring on ground during engine start are frequently due to low oil viscosity and may be self-recoverable: No maintenance action is required, if the message appears before the engine has reached a stabilized idle condition (Refer to FCOM/"ENG 1(2) OIL FILTER CLOG" procedure). Maintenance action is required, if it does not disappear when the engine is stabilized at idle.*

Intentionally left blank

OEB17 Issue 1.0
DUAL FM RESET UPON RADIAL FIX INFO ENTRY

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 169.
Several Operators reported that both FMS reset immediately after the flight crew inserted a FIX INFO radial that intercepted the F-PLN just prior to the last point of the approach (Missed Approach Point (MAP), or runway threshold). Therefore, this OEB is issued to provide the operational recommendations that should be applied, in order to help prevent this situation.

Applicable to: All A318/A319/A320/A321 aircraft with FMS2 Pegasus :

- P1C8 MOD 31896, or
- P1C9 MOD 32222, or
- P1C11 MOD 34573, or
- P1I8 MOD 31897.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013520.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HTI**				
	OEBPROC-17		**Dual FM Reset upon Radial Fix Info Entry**	00013521.0001001	30 MAR 12
	Criteria: 22-1090, P7520 **Applicable to: B-HTI**				

DUAL FM RESET UPON RADIAL FIX INFO ENTRY

ECAM ENTRY

NONE

PROCEDURE

PREVENTIVE PROCEDURE

Do not use the FIX INFO function with any radials that could intercept the F-PLN just before the last point of the approach (less than 0.1 nm).

Note: *The last point of the approach corresponds to the runway threshold for an ILS approach, or to the Missed Approach Point (MAP) for a Non-Precision Approach (NPA).*

RECOVERY PROCEDURE

If disengaged, consider reengagement of the AP/FD and ATHR.
While the FMS is recovering, consider using RMP backup tuning for navigation.

- **If the F-PLN is not lost:**

  Normal FMS operation can be recovered by clearing the radial FIX INFO, and then by re-entering the GW/CG.

- **If the F-PLN is lost:**

  When the FMS has automatically recovered, perform the associated procedures (*Refer to ABN-22 LOSS OF FMS DATA IN DESCENT/APPROACH (Severe Reset)*).

Intentionally left blank

OEB31 Issue 1.0
ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 189.
This OEB is issued to provide Operators with the operational recommendations to apply in cases where the flight crew performs an RNAV or a LOC or LOC Back Course (B/C) approach with the MAP located before the runway (RWY) threshold.
This is because in such cases, the FMGC does not compute the vertical flight path correctly. As a result, it may cause the aircraft, when flown in managed vertical guidance, during an RNAV approach, to fly a vertical flight path lower than the published one on the approach procedure chart.
This anomaly also applies to the vertical deviation indication symbol, VDEV.
These recommendations were originally published in *Refer to FCOM/FCOM Standard Operating Procedures - Non Precision Approach section*. Due to the fact that more and more RNAV procedures are being published in the Instrument Approach Procedures (IAP), Airbus found it necessary to publish this OEB in order to highlight these recommendations.

Applicable to: All A320 family aircraft fitted with the Honeywell FMS.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013530.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTI**				
	OEBPROC-31		**Erroneous Vertical Profile During RNAV, LOC and LOC B/C Approaches**	00013531.0003001	30 MAR 12
	Criteria: SA **Applicable to: B-HTI**				

ERRONEOUS VERTICAL PROFILE DURING RNAV, LOC AND LOC B/C APPROACHES

ECAM ENTRY

None

PROCEDURE

FOR RNAV APPROACHES

For any approach labelled as RNV on MCDU:

VERIFY on the approach chart and on the MCDU that the MAP is at the runway threshold

On the MCDU F-PLN page, if the last waypoint of the active F-PLN, displayed in green, is identified as a runway (e.g. LFB032L), it means that the runway threshold is the MAP.

- **If the MAP is located at the runway (RWY) threshold:**
  Use of the vertical managed guidance mode (FINAL APP) is possible.
- **If the MAP is not located at the runway (RWY) threshold:**
  DO NOT USE vertical managed guidance (FINAL APP)
  USE NAV mode for lateral guidance
  USE SELECTED vertical guidance mode only (FPA is recommended)
  DISREGARD the VDEV symbol, and crosscheck the final descent using altitude versus distance to the MAP.

Note: *Approaches labelled as "GPS" on the MCDU can be flown in FINAL APP mode, regardless of the MAP position.*

FOR LOC, OR LOC BACK COURSE (B/C) APPROACHES

CHECK the position of the MAP on the approach chart

- **If the MAP is located at the runway (RWY) threshold:**
  VDEV symbol can be used to assist the flight crew in flying the vertical flight path in selected mode.
- **If the MAP is located before the runway (RWY) threshold:**
  DISREGARD the VDEV symbol, and crosscheck the final descent using the altitude versus the distance to the MAP.

Intentionally left blank

OEB36 Issue 1.0
NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 199.
One operator reported a case where, at takeoff, the Speed Reference System (SRS) mode did not engage, as expected while setting takeoff thrust. The aircraft was dispatched in N1 rated control mode (EPR control mode inoperative).
Investigation has shown that similar misbehavior also applies in the case of go-around with EPR control mode inoperative.
This OEB is issued to provide flight crews with an operational procedure in the case of a go-around with EPR control mode inoperative (EPR control mode failure in flight).

Applicable to: All A320 family aircraft fitted with IAE engines and Flight Guidance (FG) "I9" (Thales/GE, MOD 34076) "I10" (Honeywell, MOD 35526) standard and subsequent.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013569.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTI**				
	OEBPROC-36		**No SRS Engagement During Go Around in the Case of EPR Mode Fault**	00013570.0003001	03 AUG 12
	Criteria: 22-1203, IAE, P9126 **Applicable to: B-HTI**				

NO SRS ENGAGEMENT DURING GO AROUND IN THE CASE OF EPR MODE FAULT

ECAM ENTRY

ENG 1(2) EPR MODE FAULT

PROCEDURE

In the case of go-around with EPR control mode inoperative, perform a manual go-around with no FD:

Maximum landing capability is CAT 1.

Note: To perform a manual go-around with no FD, the PF simultaneously announces her/his intention, disengages the AP, applies TOGA and initiates the rotation.

GO-AROUND..... ANNOUNCE
AP (if engaged)..... OFF
BOTH FDs (if engaged)..... OFF
Action performed by the PNF on PF request.
THRUST LEVERS..... TOGA
ROTATION.....15 ° OF PITCH
Rotate to 12.5 ° in case of engine failure.
FLAPS..... RETRACT ONE STEP
POSITIVE CLIMB.....ANNOUNCE
LDG GEAR UP.....ORDER
LDG GEAR..... SELECT UP
Adjust pitch to maintain VAPP

- **When appropriate:**
  Set both FDs to ON (basic guidance modes engage)
  Engage OP CLB and select appropriate speed and lateral mode
  AP use as required
- **When reaching thrust reduction altitude:**
  Set both thrust levers to CL detent
- **When reaching acceleration altitude:**
  Resume normal acceleration and climb procedures.

Note: CLB or LVR CLB will not flash on the FMA as the A/THR is not available. The FMS does not engage the GO AROUND phase.

Intentionally left blank

OEB38 Issue 1.0
ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the safe operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- In addition, it is recommended that all Operators rapidly incorporate applicable corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 201
In follow-up to questions received from several Operators, the objective of this OEB is to remind Operators of the possible operational consequences of an erroneous Radio Altimeter (RA) height indication:

In addition this OEB is issued to:
- Highlight that during ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react to prevent the angle-of-attack from increasing.
- Provide explanation of erroneous RA height indication effects on Auto Flight System (AFS) and flight control law.

Applicable to: All A318/A319/A320/A321 operators
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB – RED OEB

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013578.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTI**				
	OEBPROC-38		**Erroneous Radio Altimeter Height Indication**	00013579.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTI**				

ERRONEOUS RADIO ALTIMETER HEIGHT INDICATION

ECAM ENTRY

None

PROCEDURE

This bulletin is issued to remind operators of the possible consequences of an erroneous Radio Altimeter (RA) height indication. Erroneous RA height indication may have on aircraft systems, any of the effects listed in the OEB N°38.
This OEB PROC is issued to provide flight crews with the following recommendations:
During all phases of flight, flight crew must monitor and crosscheck all primary flight parameters and the FMA.

During ILS (or MLS, GLS) approach with AP engaged, in the event of an unexpected early THR IDLE and FLARE modes engagement, the flight crew must immediately react as follows:

- **Immediately** perform an automatic Go-Around (Thrust Levers set to TOGA),
  OR
- **Immediately** disconnect the AP,
  - Then continue the landing using raw data or visual references (FDs set to OFF),
    OR
  - Perform a manual Go-Around (Thrust Levers set to TOGA). Significant longitudinal sidestick input may be required.

Note: *1. If the flight crew does not immediately react, the angle-of-attack will increase and may reach the stall value.*

2. In case of Go-Around and if the RA is still frozen at a very low height indication:

- *SRS and GA TRK modes engage*
- *NAV, HDG or TRK lateral modes cannot be selected*
- *LVR CLB will not be displayed on the FMA at THR RED ALT*
- *ALT* and ALT will not engage at FCU altitude*

Disconnecting AP and resetting both FDs enable to recover basic modes (HDG and V/S).

3. In CONF FULL, the auto-trim function is inhibited. Retracting one step enable to recover the auto-trim function.

For all the others events that may occur during approach, there is no change in the procedures or in the recommended flight crew reactions.
Flight crews must report in the aircraft technical logbook if any of the consequences on aircraft systems listed in the OEB N°38.

******* END OF RED OEB38 ISSUE 1.0 *******

Intentionally left blank

OEB40 Issue 1.0
AIR ENG 1(2) BLEED ABNORMAL
PR OR AIR ENG 1(2) BLEED FAULT

Approved by: Head of Flight Operations Support and Services

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 203.
Subsequent to several dual bleed loss cases reported by Operators, Airbus decided to develop different technical solutions to improve the robustness of the bleed system. These technical solutions, although significantly reducing the number of dual bleed loss occurrences, cannot fully avoid such occurrences. Therefore, this OEB is published in order to provide all SA Operators with operational procedures aiming at further reducing the number of dual bleed loss occurrences, whatever the bleed system solution installed.

Applicable to: All A320 family aircraft.

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013605.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTI**				
	OEBPROC-40		**AIR ENG 1(2) BLEED ABNORMAL PR or AIR ENG 1(2) BLEED FAULT**	00013606.0001001	30 MAR 12
	Criteria: SA **Applicable to: B-HTI**				

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT

ECAM ENTRY

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

PROCEDURE

Apply the corresponding procedures if one of the following ECAM caution is triggered:

- AIR ENG 1(2) BLEED ABNORMAL PR
- AIR ENG 1(2) BLEED FAULT

AIR ENG 1(2) BLEED ABNORMAL PR

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED page.....SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

PACK (on the first affected bleed side)..... OFF

Note: If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.

■ **If Wing Anti-Ice is ON**

● **If both PACKS are ON**

PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

● **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**

BLEED AIR DEMAND.....REDUCE

Consider reducing the bleed air demand, by, depending on the flight conditions:
- *Switching OFF the remaining pack (if aircraft's altitude permits), or*
- *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

AIR ENG 1(2) BLEED FAULT

ENG BLEED affected.....OFF

■ **If Wing Anti-Ice is OFF**

PACK FLOW..... LO (A319/A320)
ECON FLOW.....ON (A321)
AFT CARGO HOT AIR (if installed).....OFF
X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

AIR ENG 1(2) BLEED ABNORMAL PR OR AIR ENG 1(2) BLEED FAULT (Cont'd)

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  PACK (on the first affected bleed side)..... OFF

  Note: *If Wing Anti-Ice is required (icing conditions) while operating with one PACK, consider switching OFF the remaining pack, if aircraft's altitude permits.*

■ **If Wing Anti-Ice is ON**

- **If both PACKS are ON**
  PACK (affected bleed side).....OFF

X BLEED..... OPEN
BLEED Page..... SELECT and MONITOR

- **If the precooler outlet temperature of the remaining bleed exceeds 240 °C within 2 min after X BLEED valve opening:**
  BLEED AIR DEMAND.....REDUCE
  Consider reducing the bleed air demand, by, depending on the flight conditions:
  - *Switching OFF the remaining pack (if aircraft's altitude permits), or*
  - *Switching OFF the Wing Anti-Ice system (if no longer icing conditions).*

OEB43 Issue 4.0
F/CTL SPOILER FAULT

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue: This OEB replaces the A320 OEB 208.

- Several cases of spoiler runaway occurring in flight have been reported. During these events, the failed spoiler remained in the full deflected position for the remaining of the flight. The purpose of this OEB is to inform operators about the operational impact of such a failure and to provide the associated operational procedure.
- Following flight test , this OEB PROC is revised to modify the procedure.
- This OEB PROC is revised to take into account the publication of In-Flight Landing Distances (QRH FPE-IFL)

Applicable to: All A318/A319/A320/A321 Aircrafts.
Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-43		**F/CTL SPOILER FAULT**	00013701.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTI**				
	OEBPROC-43		**F/CTL SPOILER FAULT**	00013702.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTI**				

F/CTL SPOILER FAULT

ECAM ENTRY

F/CTL SPLR FAULT

PROCEDURE

- **If F/CTL SPLR FAULT is triggered**

F/CTL S/D page.....CHECK

The flight crew should check the spoiler position on the F/CTL System Display page.

■ **If all amber spoilers are indicated retracted:**

Loss of one or more spoilers in the retracted position. In such a case, the flight crew must apply the following operational procedure that reflects the F/CTL SPLR FAULT *ECAM caution.*

F/CTL SPLR FAULT

Note: If heavy vibrations are felt, CONF3 may be used for landing in order to reduce the buffeting.

– SPD BRK (if spoilers 3 + 4 affected).....DO NOT USE

Do not use speedbrakes, since using only surfaces N°2 is not efficient and would activate the SPD BRK DISAGREE caution.

	STATUS
• if spoilers 3+4 affected	INOP SYS
– SPD BRK .....DO NOT USE	SPLR(affected)
LDG DIST PROC.....APPLY	SPD BRK (if spoilers 2+3+4 affected)

■ **If at least one spoiler is indicated deflected in amber, apply the following procedure:**

F/CTL SPLR FAULT

AP.....OFF

Depending on the failed spoiler position, the AP may not have enough authority to counteract the roll induced by spoiler runaway.

SPEED..... GDOT+10

Whenever possible, target green dot speed +10 kt to minimize fuel consumption. However, if buffet is encountered at GDOT speed +10 kt, increase speed to fly out of buffet condition.

CRUISE ALTITUDE.....AS REQUIRED

Current Flight Level (FL) may not be maintained due to increased drag. Maintain a cruise FL as high as possible.

FUEL CONSUMPTION INCREASED

FMS FUEL PRED..... DISREGARD

FUEL CONSUMPTION..... DETERMINE

DIVERSION..... CONSIDER

APPR PROC

In clean configuration, if VLS is above VFE_{NEXT}, the flight crew should deselect A/THR, decelerate to VFE_{NEXT}, and select CONF 1 when below VFE_{NEXT}. When established at CONF 1, the flight crew can reengage the A/THR and use managed speed again.

FOR LDG.....USE FLAP 3

F/CTL SPOILER FAULT (Cont'd)

GPWS LDG FLAP 3 ..... ON
LANDING PERFORMANCE ASSESSMENT ..... PERFORM
For Landing Performance assessment refer to QRH FPE-IFL

OEB44 Issue 4.0
L/G GEAR NOT DOWNLOCKED

- This OEB covers a significant operational issue. Non-compliance with this OEB should have a significant impact on the operations of the aircraft. The Operators shall distribute its content to all flight crews without delay. An extract of this OEB is provided for insertion in the QRH.
- It is recommended that all Operators accelerate the incorporation of all corrective Service Bulletins as soon as they become available.

Reason for issue:

Issue 2 and 3:

This OEB is reissued to improve the display of the L/G GEAR NOT DOWNLOCKED procedure.

Issue 1:

This OEB replaces the A320 OEB 209.

This OEB is issued to provide operational recommendations in the case of L/G GEAR NOT DOWNLOCKED ECAM warning.

The illustration has been revised to improve the quality and the legibility.

Applicable to: All A320 family aircraft

Cancelled by: Refer to the "Cancelled by" section of the associated FCOM OEB.

Note: The interchangeability code, given in the Illustrated Part Catalog (IPC), indicates the conditions for interchangeability of equipment. After installation of corrective modification(s)/SB(s), if an Operator reinstalls any equipment affected by this OEB, it is the Operator's responsibility to ensure that the recommendations given in this OEB are applied again for the applicable aircraft.

Operations Engineering Bulletins are issued by Airbus, as the need arises, to quickly transmit technical and procedural information. They are distributed to all FCOM holders and to others who need advice of changes to operational information.
The information in the OEB is recommended by Airbus, but may not be approved by Airworthiness Authorities. If the procedures contained in this OEB differ from the procedures in the AFM, the AFM remains the reference.

M	Localization	T	DU Title	DU identification	DU date
R	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013699.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTI**				
	OEBPROC-44		**L/G GEAR NOT DOWNLOCKED**	00013700.0001001	03 AUG 12
	Criteria: SA **Applicable to: B-HTI**				

L/G GEAR NOT DOWNLOCKED

ECAM ENTRY

L/G GEAR NOT DOWNLOCKED

PROCEDURE

Apply the following procedure if the ECAM triggers the L/G GEAR NOT DOWNLOCKED warning:

L/G GEAR NOT DOWNLOCKED

This warning appears, if the landing gear sequence is not completed after 30 seconds.

L/G lever.....RECYCLE

- **IF GEAR NOT DOWNLOCKED AFTER 2 MINUTES:**

  L/G GRAVITY EXTENSION PROC.....APPLY

STATUS

The status displayed on the ECAM is correct.

Intentionally left blank